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The DAR Story

With 29 Illustrations
19 in Natural Colors

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and JOHN E. FLETCHER

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The DAR Story

By LONNELLE AIKMAN

With Illustrations by National Geographic Photographers B. Anthony Stewart and John E. Fletcher

IN DOWNTOWN Washington, D. C., show-place of the marble and limestone giants of Government,* stands a gleaming colossus dedicated to what 154,000,000 Americans regard as the world's most successful revolt.

Headquarters of the National Society of Daughters of the American Revolution, its three-buildings-in-one add up to the biggest and most beautiful structure which women have ever raised. It is staffed, with the exception of a few maintenance workers and a business manager for the rental of its auditorium, exclusively by women.

One might say that the national home of the "Daughters," as they informally call themselves, is a monument to woman's consistency. For the organization it houses has held throughout its lifetime to the undeviating principles of Americanism on which it was founded.

From this nerve center lines of feminine leadership and guidance reach out to 170,000 members in every State of the Union, as well as many abroad. Devotion to the heritage of the past is a pattern that shines through the warp and woof of all the Daughters' accomplishments. Heroines of the American Revolution—Molly Pitcher, Hannah Arnett, Deborah Sampson, and the rest—have their own special niches of fame at headquarters' appropriate D Street address, No. 1776 (page 566).

But DAR work, carried on through a network of chapter, State, and national committees, is by no means limited to the ancestral. In one way or another it touches nearly every phase of current American life, whether civic, educational, health, or national defense.

Behind the classic front of the DAR in Washington buzzes a surprising variety of activities. Not only are there rows of offices

for the many chores one would expect in running the country's leading women's patriotic association; there are also 28 historic rooms, a museum, and an extensive genealogical library.

The unique DAR concert auditorium, with a seating capacity of almost 4,000, is the largest in the city (pages 584-5). Between annual sessions of the Daughters' conventions it serves the Nation's Capital as a cultural center. There, before large and appreciative audiences, are presented symphony concerts, lectures, ballet, folk singing, debates, and a wide variety of other programs whose performers may range from world-renowned artists to Washington's own Very Important Persons, lending a hand for a benefit amateur night.

National Geographic Lectures Held at Constitution Hall

Members of the National Geographic Society have a special interest in the DAR auditorium. Since 1933 Constitution Hall, as both auditorium and building are called, has been the familiar setting for The Society's weekly winter-season lectures (page 573). Even before that, the old auditorium in Memorial Continental Hall was used to present such outstanding lecturers as the great British explorer, Sir Ernest Shackleton, returned from Antarctic exploits.

Veteran members of the National Geographic Society can recall many exciting evenings when trail-breaking explorers, scientists,

* See, in the NATIONAL GEOGRAPHIC MAGAZINE: "Washington: Home of the Nation's Great," by Albert W. Atwood, June, 1947; "Washington, Home City and Show Place," by Leo A. Burah, June, 1937; "Wonders of the New Washington," by Frederick G. Vosburgh, April, 1935; and "Washington Through the Years," by Gilbert Grosvenor, November, 1941.



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DAR Headquarters in Washington, D. C., Carries the Appropriate Number, 1776

This massive three-in-one combination—Memorial Continental Hall, Constitution Hall, and their connecting link, the Administration Building—forms the largest structure ever raised by women. The Administration Building, standing at 1776 D Street, bears the Declaration of Independence date.

and aviators reported adventures that opened up new horizons of man's knowledge, from North Pole to South Pole, from the depths of the sea to the stratosphere.

Prominent on the star-spangled list of those who have spoken in Constitution Hall are the bright names of MacMillan, Byrd, and Beebe; General of the Armies of the United States John J. Pershing, and General of the Air Force H. H. Arnold; Lowell Thomas, back from Tibet; Auguste Piccard, who dared the stratosphere to study cosmic rays; and U. S. Army airmen Albert W. Stevens and Cecil A. Anderson, who won the world's altitude record in a stratosphere balloon.

At an early gathering in 1932, one of the most distinguished audiences ever brought together under one roof witnessed the presentation to Amelia Earhart of the National Geographic Society's Special Gold Medal, honoring her solo flight over the Atlantic.*

It was by no accident then that President Hoover, in making the award on behalf of The Society, described the tragically destined aviatrix as belonging "in spirit with the great pioneering women to whom every generation of Americans has looked up."

To see DAR headquarters "whole," I drove slowly, one evening at dusk, around the full city block it occupies in the shadow of the Washington Monument. An endless chain of winking headlights from homeward-bound traffic lent an air of mystery, of shadow and substance, to the stately-columned facade of Memorial Continental Hall. Beyond stretched the simple, horizontal lines of the connecting Administration Building; still farther loomed the great square of Constitution Hall, with its massive entrance steps and broad, Ionic-pillared portico.

Continental Congress Draws Thousands

Each spring more than 4,000 delegates converge on these buildings to attend the Continental Congress, the DAR national convention which has become as much a part of the Capital scene as the cherry-blossom festival. The spring date itself is a symbol of DAR feeling for American history. The Daughters permanently reserve Constitution

* See, in the NATIONAL GEOGRAPHIC MAGAZINE: "My Flight from Hawaii," by Amelia Earhart, May, 1933; and "Society's Special Medal Awarded to Amelia Earhart," September, 1932.

Hall for themselves during the week that includes April 19, date of the Battle of Lexington.

Curtain raiser for the Congress is the formal opening at Constitution Hall (pages 584-5), resplendent then with flags and flowers, with pretty pages, jeweled badges, ancestral bars, and broad official ribbons of blue and white, taken from the staff colors of General Washington.

Patriotic speeches by DAR leaders and distinguished guests are the order of the day. Often the President of the United States addresses the gathering. In fact, since the National Society was founded, virtually every President, at least once during each administration, has either spoken at the Continental Congress or sent his good wishes (page 571).

On April 19, 1951, occurred one of the big dramatic moments of DAR history. It happened that this Battle of Lexington anniversary was also the day when General of the Army Douglas MacArthur returned to the Capital to make his now famous "old soldiers" speech before the joint meeting of the U. S. Congress. Slipping away from the welcoming Washington crowds a little later, he came to Constitution Hall to address the Daughters gathered there for their Sixtieth Continental Congress (page 582).

"I determined to stop by," said the general, "to avail myself of an opportunity I have long sought personally to pay you the tribute that is in my heart.

"Of all the great societies of the country during the past century, I know of none which has fought more diligently for the preservation of those great ideals which bulwarked our forefathers in their efforts to secure and preserve freedom. . . . In this hour of crisis all patriots look to you. Good-by."

Behind the emotion-packed high spots of such sessions and the patriotic pageantry that marks all DAR conventions, the practical, basic work of each annual meeting goes on—election of officers, committee reports, drafting of resolutions, and other acts of leadership by



George Washington Slept Here

The Daughters have set up more than 12,000 plaques commemorating Revolutionary homes, trails, graves, and battlegrounds (page 579). Washington was a frequent visitor at the Capital's 2618 K Street when the house belonged to Thomas Peter and his wife, Martha Parke Custis, granddaughter of Martha Washington. The general's diary tells of a stop here in November, 1799, a later date than that shown on the marker.

which the Daughters carry out their now Nation-girdling programs.

In the crumbling yellowed pages of old issues of the *Evening Star* and *Washington Post* one can trace the modest beginnings of today's strong and influential society.

DAR Founding Spurred by Indignant Woman

During the summer of 1890 an open letter in the *Washington Post* attracted public attention and spurred the first formal and united action. The date was July 13, in a peaceful horse-and-buggy year when an editorial writer could point to the development of a new "dynamite gun" so frightful in its destructiveness that it would discourage future warfare.

Looking past this and other timely items of that quiet Sunday morning, *Post* readers came on a strongly worded letter from an indignant woman. The writer was a Capital resident, Mrs. Mary S. Lockwood. Like many thoughtful women of the time, she felt that feminine exclusion from membership in the



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Genealogical Detectives Track Down Family Ties in DAR's Flag-decked Library

Theater boxes remain from the days when the high-ceilinged room was the DAR auditorium, used for conventions and other gatherings. Not only members but lawyers and hobbyists make use of the library's facilities (page 591).

lately formed patriotic organization, Sons of the American Revolution, was not only a discrimination against her sex but a failure to honor properly the heroic part women played in the Revolution.

"One-sided patriotism," Mrs. Lockwood called it. "Were there no mothers of the Revolution?" she asked. "Were these sires without dams? I trow not . . . I have heard of a man," she added caustically, "who had a dam by a mill site, while he had no 'mill by a dam site.' But I have yet to hear of a man who had a Revolutionary sire without a dam by the home site."

To clinch her point, she told of Hannah Thurston Arnett, who lived in Elizabethtown, New Jersey, during the desperate days of December, 1776. When a group of American leaders, including her husband, met at the Arnett home in a despairing council that leaned toward acceptance of the British offer of amnesty, she rekindled courage and the will to resist by denouncing would-be traitors to the Revolution. She even threatened to leave her own beloved husband if he should forsake the cause.

"On the roll of honor," Mrs. Lockwood concluded her letter, "are the names of men who fought for their country and won distinction afterward, who were in this secret council. . . Where will the sons and daughters of the Revolution place Hannah Thurston?"

The answer was the founding of the DAR.

Men Volunteers Aid

Interested Washington women, rallying to the support of Mary Lockwood, immediately began taking steps to form a society that would do honor to the Hannah Arnetts.

From Newark, New Jersey, came another open letter to the *Washington Post*, from a great-great-grandson of Hannah Arnett and one of the leaders of the women-excluding Sons of the American Revolution. Its writer, William O. McDowell, volunteered to help with the practical details of arranging meetings, adopting a national constitution, and electing officers. After his part was done, he promised he would turn the job over entirely to the leaders of the budding organization.

After various preliminary conferences during that hot Washington summer, the first official meeting of the DAR was held on October 11, 1890. The date chosen, the eve of the anniversary of Columbus's discovery of America, had been suggested by McDowell as particularly appropriate, since it was the generosity and wisdom of a woman, Spanish Queen Isabella, that provided Columbus with the means of outfitting a fleet for his perilous voyage.

Eighteen women signed up for membership

at the first DAR meeting, including the four later officially recognized as founders—Mary S. Lockwood, Eugenia Washington, Mary Desha, and Ellen Hardin Walworth.

A constitution was adopted. Caroline Scott Harrison, wife of the President of the United States, was elected President General (pages 581 and 583). Eleven members contributed \$3 each in dues.

The National Society, DAR, was launched—with a treasury of \$33 and an uncharted future.

Founders' Promises Fulfilled

The new organization's aims were packaged in an elastic phrase, "patriotic, historical, and educational." As stated in their constitution, the founders resolved "to perpetuate the memory and spirit of the men and women who achieved American independence." They would do this by raising monuments, protecting historic spots, encouraging Revolutionary research, preserving historic documents, and promoting celebrations of patriotic anniversaries.

Further, they would "carry out the injunction of Washington in his Farewell Address: 'to promote . . . institutions for the general diffusion of knowledge,' thus developing an enlightened public opinion and affording to young and old such advantages as shall develop the largest capacity for performing the duties of American citizens." They would "cherish, maintain, and extend the institutions of American freedom; foster true patriotism and love of country. . ."

Today's Daughters can look back on six decades of literal fulfillment of the promises made by their society's founders.

They have restored hundreds of historic buildings and raised and marked patriotic monuments all over the country. They have collected an immense amount of Americana; encouraged good citizenship and patriotism among the young by thousands of special awards and large and continual contributions to educational facilities. They have founded and maintain two schools of their own in isolated mountain regions.

"It would take hours to tell you all about the thousand-and-one programs we now have under way," said slim, blue-eyed Mrs. James B. Patton, of Columbus, Ohio, current President General (page 581).

"Fundamentally, of course, our work is for 'God, home, and country.' But we are not afraid to be out in front fighting for what we believe in . . . Now everyone has come around to what we have been saying for years—that our country is threatened by frightening, un-American forces, by enemies within and without. By spreading light on the American ideal

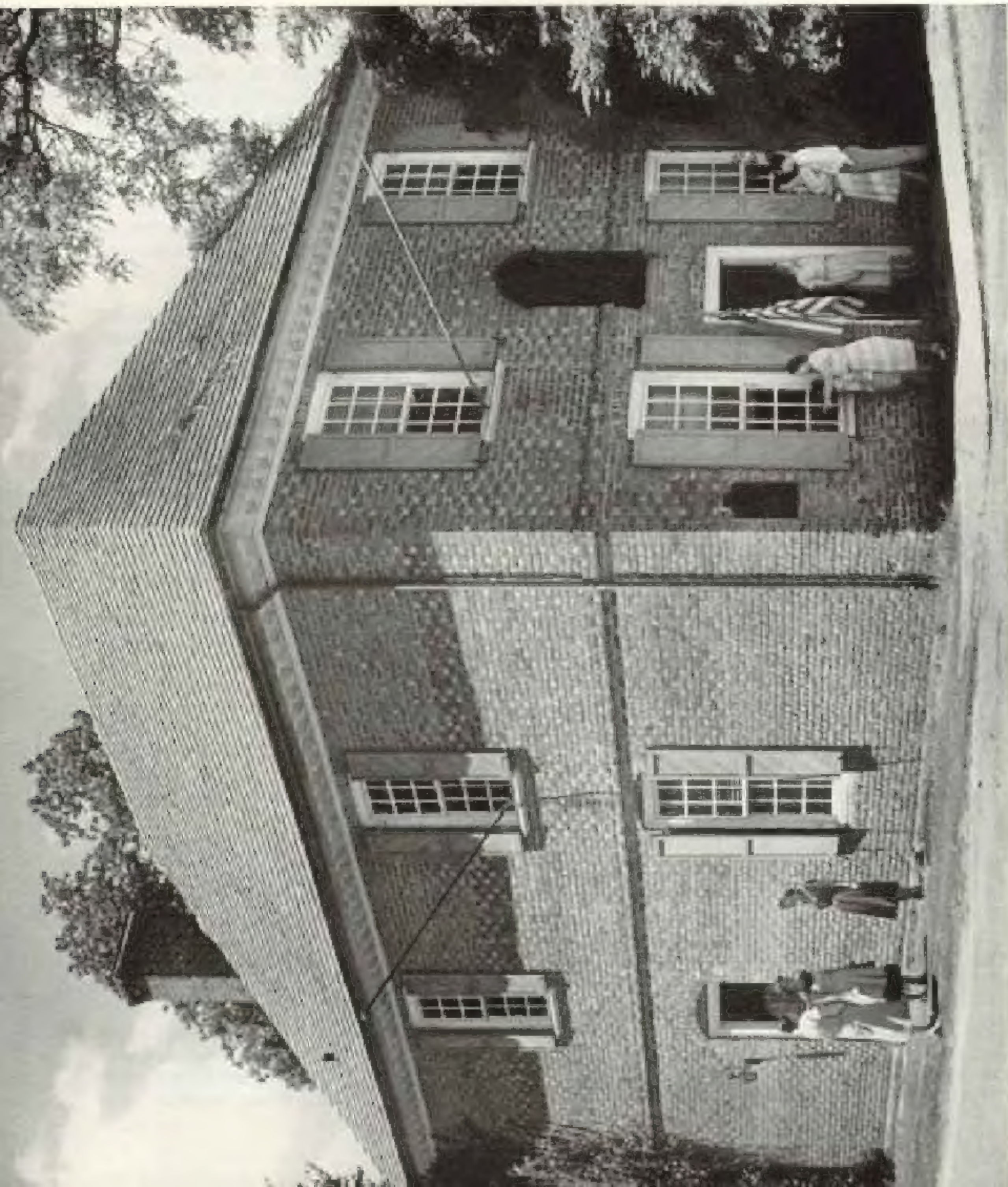
The DAR Preserves Yorktown's Old Customhouse

Built in 1706, this building was the first customhouse in the American Colonies. Here papers were issued to skippers wishing to land cargoes at various ports. After serving in a number of capacities, the house was bought in 1924 by the DAR's Count de Grasse Chapter and opened as a museum. It commemorates the career of a gallant Frenchman who helped write the victory chapter of the independence struggle.

Francis Joseph Paul, Count de Grasse, was placed in command of a French fleet in 1781 and sent to the aid of the Americans. With 28 ships and several thousand troops he sailed from the West Indies for Chesapeake Bay, arriving late in August. The soldiers and some of the vessels he sent to the York and James River fronts.

De Grasse's fleet, repulsing a British naval force, set up a blockade that prevented reinforcements from reaching Cornwallis's beleaguered army at Yorktown.

George Washington, on hearing of the Frenchman's death in 1788, wrote: "His name will be long deservedly dear to this country."



**"We Shall Fight to
Preserve Freedom . . ."
Harry S. Truman**

DAR officers and distinguished guests fill Constitution Hall's big stage. Recording Secretary General, Mrs. Warren Shattuck Currier, reads President Truman's greetings to the Sixtieth Continental Congress.

"I wish," said the message, "that all our citizens would join with your society this year in paying homage to the ideals on which our Nation is founded. . . . It is the task of the free world . . . to defend, with armed force if necessary, this continuing liberation of the human spirit. . . ."

Past Presidents General (far left) are distinguished by broad official ribbons (page 581). Vice Presidents General (right) wear narrower bands.



we hope to help others to see more clearly through the fogs of Communist propaganda that surround us on every side."

Back in 1890 the time was ripe for the development of an organization such as the DAR. Patriotic fervor, revived around the 1876 celebration of the first hundred years of independence, had merged with an expanding Nation's pride in "manifest destiny." Women's clubs were growing and federating, and enthusiasm was perking for various national organizations working toward woman suffrage and other feminist causes.

So the DAR grew and prospered. By 1900 there were some 30,000 members meeting the requirements of direct lineal descent from ancestors who, "with unfailing loyalty" in military or civil capacity, had served the cause of American independence.

"Foolhardy Women" Build Well

In 1902, when enrollment had risen above 38,000, need for a national headquarters was unmistakable. Ignoring remarks about "foolhardy women," the organization purchased a portion of the undeveloped and swampy land north of what is now Constitution Avenue, at the edge of Washington's Mall.

This land had once been part of the huge tract owned by the "obstinate Mr. Burnes," as George Washington, misspelling his name, called the crusty old Scot who was the last to sell his property for the use of the Capital that was to open for business in 1800.

Later, one of Washington's early mayors, Capt. Thomas Carbery, built a pleasant residence on the DAR site-to-be. The old Burnes cottage and the Van Ness mansion erected beside it were other landmarks of the area.

The DAR Memorial Continental Hall, however, was the first private building of national scope to rise in the vicinity of the White House, Treasury, and the old State, War, and Navy Building.

This area now contains nearly a dozen huge Government and semipublic structures, including the handsome buildings of the American Red Cross and the Pan American Union.

The cornerstone for Continental Hall was laid in 1904, with the same historic trowel used by George Washington more than a century earlier to dedicate the foundation of the National Capitol.

That women could get things done in a hurry was proved in 1905, when enough of the building was ready to hold there the Fourteenth DAR Continental Congress.

Gradually, over the next quarter-century, the rest of the mammoth headquarters took form.

First, in gleaming Vermont marble and

granite, Memorial Continental Hall stood complete, with broad stone terraces and three handsomely columned porticoes (page 596).

Inside was the original auditorium, patterned after an old town meeting hall and seating 1,600. Reaching to the roof, surrounded on three sides by galleries, this auditorium saw 20 sessions of Continental Congress between 1910 and 1929. It even witnessed a little world history, in 1921, when the hopeful Washington Conference on the Limitation of Armaments held meetings there.

Meantime, more ground had been bought to provide additional space for ever-expanding activities. Adjoining Continental Hall, the Administration Building was opened in 1923, with 32 rooms to house the growing executive and clerical staff.

But already the Daughters were beginning to crowd their old auditorium. So, step by step, as the contributions piled up from faithful members and chapters around the country, Constitution Hall came into being. Completed in 1929, it provided a tailor-made meeting place, built and equipped to fit the needs of the huge annual gatherings.

On the grounds that same year another long-term project came to fruition, a memorial to the organization's founders. The work of a DAR member, the late Gertrude Vanderbilt Whitney, it portrays in white marble the simple draped figure of a woman, arms outstretched (page 586).

But woman's work, says the old saw, is never done. Only last year a general renovation job was completed at a cost of well over a million dollars. Added to the extensively remodeled Administration Building were new office rooms and a huge streamlined voting hall, whose fast-operating equipment now eliminates the hectic all-night sessions that once marked DAR election night.

Another addition was the new Museum Gallery, where thousands of historic articles, lovingly gathered through the years, could at last be displayed in a setting suitable to one of the Nation's outstanding collections of early Americana.

Museum with Home Touch

"We like people to think of this not as a formal museum but as a collection of precious relics of their forefathers and ours," said soft-voiced Mrs. Fay Edgar, hostess and assistant curator of the DAR museum.

She was speaking, as I came up, to another visitor, a young soldier. In khaki uniform, pants tacked into sturdy boots, he seemed to belong to a world far from that of spinning wheels, period furniture, and old portraits. But he was very interested, very solemn.



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Scotland's Winged Mr. Ramshaw Is a Star Attraction at Constitution Hall

Backstage at the DAR auditorium, Capt. C. W. R. Knight, British falconer and lecturer, introduces his pet golden eagle, Mr. Ramshaw, to Dr. Gilbert Grosvenor (center), Editor of the *NATIONAL GEOGRAPHIC MAGAZINE*, and Dr. Alexander Wetmore (right), Secretary of the Smithsonian Institution. Captain Knight addressed the Washington membership of the National Geographic Society, whose annual series of lectures has been given in Constitution Hall since 1933 (page 565).

We moved over to the "parlor section" of the long, high-ceilinged gallery. Silver tea things were set out on a Pembroke table beside a comfortable-looking wingback chair. Near by stood the original desk of John Hancock and, beyond, a Chippendale sofa which had belonged to another signer of the Declaration of Independence, Thomas McKean.

A grandfather clock, a simple early-American fireplace, and a table on which John Paul Jones's spectacles lay casually on an open copy of the Bible completed the picture. It looked cozy enough to imagine a scene of bewigged gentlemen, in knee breeches and buckled shoes, sitting there for a teatime chat on post-Revolution problems—say, the hot controversy over Bill of Rights amendments, or trouble with hostile Indians in the Northwest.

In the whole sweep of the museum perhaps the most impressive exhibit is the cleverly lighted portrait of Martha Washington, seen through a stone archway (page 589). A du-

plicate of the one that hangs in the White House, it was painted in 1905 by Eliphalet F. Andrews, who founded the Currier Gallery's School of Art in Washington.

The portrait's red-damask background was made especially to pick up the color of a part of her skirt.

Altogether, the museum owns more than 6,000 items. Mostly gifts from individual members and chapters as well as from many outsiders, this collection is too large to be shown at one time; hence minor objects are shifted about once a year.

Among the most prized permanent exhibits is a copy of the life mask of George Washington made by the French sculptor, Jean Antoine Houdon, who spent two weeks at Mount Vernon with his subject.

Other items always on view include a lyre-shaped brooch of what looks like rose-gold netting, but is actually some of Washington's own hair; Martha Washington's teapot, from



NEW ADAPTING Citizens: We Study These Problems

1440 copies. "There is no doubt in my mind," says the author, "that the plans of the Government to build a new and better country are being carried out. Millions of people have been helped since the first of the new year. Millions of people are employed. Millions are in Czech lands."

which she served soldiers at Valley Forge and several worn and delicate spoons designed by Paul Revere.

There are earrings which gay Della Madison wore: a fragile lace-trimmed satin gown that once belonged to Caroline (Mrs. Benjamin) Harrison (page 583); a pinch of snuff from the Boston Tea Party; and Patrick Henry's ring inscribed with the familiar words "If this be treason, make the most of it!"

You will expect this patriotic sentiment, and it is the backbone of your collection of over 100 articles of the past. It has

There are displays of old kitchenware and china, including rare pink Spode, Lowestoft and Staffordshire. Other cases feature pewter, brass, and the noted South Jersey glass, including "witch balls" that sometimes were hung in the windows to catch the sun and keep evil spirits away. At other times they kept the top of the sugar bowl.

There is also a Revolutionary-time section with exhibits of babies' christening robes, children's old-fashioned clothing, and enough dolls and toys to pop the eyes of today's small fry.

Finally the soldier
in the uniform before
me—of good relics of
the American fight for
independence—a Con-
tinental Army uniform,
Revolutionary pocket
swords, cartridge belts
and an early 13-star flag
(page 582). He smiled
as we read the carved
inscription on an old
powder horn, "The Red
Coat who steals this
Horn, will go to Hell
from whence he's born." And I mustered enough
impertinence to ask the
question that had been
puzzling me

How did it happen that a young man on leave in the Capital could find time to visit such a spot?

I'm from California," he told me. "It's my first trip East, where everything is so much colder than it is back home. I thought maybe I could learn something about where we all come from. . . . What it was like for that other war."

"And it's nice," he added, "to find people who care for us so hard."

To the visitor wandering about Memorial Continental Hall the whole building is a museum, with accent on the "memorial."

Memorial Hall Lives Up to Name

The impressive semicircular south portion, for example, is dedicated to the Thirteen Original States (page 546). The triple-ceilinged vaults tie with the elders commemorated Revolutionary heroes, as well as DAR founders and charter members. In the spacious marble entrance hall and nearby corridors are more than a dozen memorial busts to young American heroes: Washington, Jefferson, Franklin, John Adams, to mention a few.

The eye-catcher in the way of decoration is a 4-ft.-silver, wall-length bas-relief of the Declaration of Independence, topped by a silver reproduction of the famous Trumbull painting of the signing. It was presented to the DAK by the husband of a past President General, Mrs. George Dyer, 505 N. Broadway.

If you are interested in period furniture, Continental Home has 28 rooms for your leisure.

Here you'll see some of the typical science

of early American households," explained my guide, Mrs. Cecil Norton Hroy, whose duties as curator of the museum also include charge of the historic rooms.

Each room is named for the State society which bought it. Various chapters and members contributed the furnishings, she continued. "We have painted the walls in authentic Williamsburg colors, and many of the Daughters have donated cherished family heirlooms."

On the grand tour we passed through halls lined with glass cases of colorful quilts and coverlets, handmade before 1830. Peeping through doorways, I saw colonial parlors, music rooms, and libraries, an early-American kitchen with massive fireplace (page 588); a time-mellowed bedroom, complete with four-poster bed and china washbowl set; and a charmingly gabled "children's attic" crammed with toys and trinkets. There were even baby shoes worn in 1763 and old alphabet plates of a long-list "ABC" age (page 589).

Browsing antique fan-clubbers find in these rooms such prized collectors' items as a chair in which Washington and Lafayette each sat, the mantel from a house where Henry Clay lived, and flutes, pipes, and drums whose martial notes once fired the spirits of fighting colonists.

Most curious of all is the New Jersey room, whose woodwork and furniture are made of old ship's timbers, and whose stained-glass windows depict scenes of the Revolution. Wood panelings and Jacobean-style furniture were all made from the reclaimed bulk of the British ship *Augusta*, sunk in the Delaware channel during the 1777 battle for control of the Philadelphia approaches.

To the public the State rooms may be little museums, but they are by no means limited to sight-seeing. At Continental Congress time each namesake spot becomes a lively bit of home ground as State delegates con-



Tamwer Sparks the Lamp of Knowledge

TAMMERS LAW SCHOOL, the first law school in the South, was founded by the Daughters in 1917. Located in the heart of the historic city of Savannah, the school is now one of the largest and most beautiful in the South. The school is now one of the largest and most beautiful in the South. The school is now one of the largest and most beautiful in the South.

and committees gather there for greetings and consultations.

All over the buildings, in fact, one finds this home touch in plaques acknowledging donations from State chapters, or individuals toward building their national headquarters.

It is an interesting fact that no professional artists had a part in creating this old place now worth \$7,000,000. At the architectural session many a Daughter declared "the price of the hat on her head."

Gifts have ranged from whole structural parts to the tiniest spoons for the banquet room. In Constitution Hall, for instance, the back of each seat bears the name of a specific donor, many of whom made the presentation as a memorial to a distinguished ancestor or to a beloved DAR officer or friend.

Again, the new tables, stacks, and other equipment of the recently enlarged and modernized Genealogical Library also came from the organization's own funds and are so marked and acknowledged. One of the largest individual contributions made was a bequest of \$26,000 to the library for the purchase of books in its field.

Library Is Busy Spot

When the original library was opened, on completion of Memorial Continental Hall, its collection amounted to only 126 books. Today it holds 39,000 bound volumes, plus a wealth of other material useful to the detectives of genealogy who track down the lost links of family connections (page 591).

For those interested in woman's part in the making of America, there is a shelf of reference books telling of the lives and times of such heroic figures as Deborah Sampson, who was disguised in men's clothes to fight like any other soldier in Washington's army, or tough-and-ready Molly Pitcher, who brought water to the fighters of Monmouth, New Jersey, and took over the firing herself when her gunner husband fell wounded.

Even in the despairing days of Valley Forge one finds an amusing sidelight on the human character of the commander in chief in this letter to a young lady admirer.

"General Washington," it reads, "having been informed lately of the honor done him by Miss Kitty Livingston in wishing for a lock of his hair, takes the liberty of enclosing one, accompanied by his most respectful compliments."

Showplace of the library is the big reading room which now occupies the converted old auditorium in Continental Hall (page 568). In this hushed, high-vaulted room, where the flavor of the past lingers on in eagle-decorated theater boxes, I found men and women bent over piles of books and pamphlets.

"Thousands of people use our facilities every year," said the librarian, Mrs. Mary T. Walsh. "Lawyers come in to check family details concerning wills and property problems. Hobbyists spend full working days here, along with our own and other professional genealogists. Many retired Army and Navy officers, some of them generals and admirals, are among our regular visitors."

"We're pretty busy now," she added, "but you might to see us when the members flock in by the hundreds during Congress week rush."

Besides published books and similar formal material, the library offers genealogical researchers numerous other aids, some not found elsewhere.

In air-cooled archives I saw rows of cabi-

nets containing thousands of folders of typed and hand-copied documents—marriage certificates, wills, Bible and tombstone records. These papers, acquired as proof of eligibility to DAR membership, often hold answers to questions of family ties and ancestors' service.

There is a special room for the Recordak machine that enlarges microfilm rolls of old State census reports and collections of early church records. Before it patient researchers sit for as many hours as eyes will allow, scanning faded names, places, and dates of long-ago facts of life and death.

In hundreds of bound volumes marching along the shelves I found one huge and useful collection of records amassed over the years in connection with membership applications. It contains summaries of information on the lives and families of Revolutionary War pensioners which were abstracted from the soon-to-be-removed originals on file in the National Archives Building.

I thumbed through a few. Their statistics seemed as remote as the Biblical "negals."

"But it can be a great thrill," observed Mrs. Walsh, "when someone digging into such material comes on that bit of information he has been hunting for 20 years . . ."

"Yes, research here does turn up some funny names. Among the members of our Dewey family, for example, were characters named Pleiades Anastarcus, Octavia Ammonia, and—believe it or not—Encyclopedia Britannica!"

Genealogists at Work

The speed with which DAR genealogists can trace one's ancestors seems at times like magic. I heard of one case where the mention of a name and a brief look into the files of family records produced immediately the desired information concerning a forebear's Revolutionary career.

"But it's not always so easy," said chief clerk Miss Theodora Wingate. "Occasionally the entire story of an illustrious family may unfold within the pages of a single volume of family history. More than likely, however, we will spend days or weeks searching out the elusive details needed to corroborate various statements made in applications for membership."

At headquarters 15 professional genealogists work steadily at the job of examining applications. New members have been admitted lately at the rate of eight to nine thousand a year. "Supplemental lines" (proof of relationship of a member to more than one Revolution serving ancestor) amount annually to more than a thousand.

Since there is no limit to the supplementals, and since credit for Revolutionary service is given for ancestors holding even the smallest

of civic posts between 1775 and 1783, some members have established 20 or more lines. Along with the credit goes the right to dress up in an equivalent number of ancestor bars, in addition to the original membership pin.

In reverse order, many of the Daughters "have come in" on a single ancestor.

The organization's membership list includes descendants of fighting Nancy Hart, the famous log-cabin heroine whose salty personality and bold exploits made for some of the Revolution's most dramatic history.

On one occasion Nancy helped a rebel Whig escape from a pursuing party of the King men. Later she herself captured another whilom friend of Tories, later hanged them on her last day.

First how does one go about proving eligibility to the DAR? I asked a staff genealogist, Mrs. F. for her Quill pen. "What should I do, for instance, to look into the family tradition that my great-great-great-great-grandmother had seven sons in the Continental Army? The story goes that she told Lord Cornwallis, who had taken over her farm, that she wished she had seven more sons to send."

First, "explained Mrs. Quillan, "you make up a simple family chart. Start with yourself and draw lines on both sides back to as many ancestors as you can, including all dates and residences possible."

"Then the real work begins. You may find the Revolutionary service of an ancestor in state, county, or town records, here in our library, in the Library of Congress, or in other national and local repositories throughout the country. Assistance may also be had from the original papers of Revolutionary participants and from the original Census records on file in the National Archives Building.



57

A Yard of Honors Describes a Busy DAR Career

Some of the most interesting and colorful members of the Daughters of the American Revolution have been the women who have served in the organization's many capacities. Some have been active in the organization for many years, some have been active in the organization for many years, some have been active in the organization for many years, some have been active in the organization for many years.

Perhaps you have old family letters or pictures showing family links. You may get vital statistics from State capitals, county or town offices.

"As to family traditions," she smiled "they are the backbone of all to verify."

I agreed. "We must even find that our ancestors were in the water to 77 other families."

Complex Organization with Hard-working President

Since its beginning, nearly 400,000 women have established ancestral right to DAR membership. Today the 17,000 active members are banded into 2,500 chapters, not only all over the United States but in Alaska, the Canal Zone, Hawaii, the Philippines,



DAR Gift Books Build up a Boys Club Library

The President of the Board of Trustees, American Overseas Society, Inc., has been elected to the position of President of the American Overseas Society, Inc. The President of the American Overseas Society, Inc. is a woman who has been elected to the position of President of the American Overseas Society, Inc. The President of the American Overseas Society, Inc. is a woman who has been elected to the position of President of the American Overseas Society, Inc.

Europe, Asia, Africa, Australia, India, and Italy. When the first book came there was even a chapter on "Soulful Church".

The books are now in DAR working method and progress.

The American Overseas Society, Inc. is a woman who has been elected to the position of President of the American Overseas Society, Inc. The President of the American Overseas Society, Inc. is a woman who has been elected to the position of President of the American Overseas Society, Inc. The President of the American Overseas Society, Inc. is a woman who has been elected to the position of President of the American Overseas Society, Inc.

Business by Mail, Meetings, and Committees

Only in Washington, I found a permanent and full-time staff of 11 permanent officers who in the organizational are elected to a 2-year term. In some cases, the term is 1 year. The always working in various parts of the

country, they carry out their duties through a network of regional and local committees. They are elected by a vote of the President General, who is elected by the members.

At the peak of the pyramid, the President General is elected by the members. She is elected by the members. She is elected by the members. She is elected by the members. She is elected by the members.

At the peak of the pyramid, the President General is elected by the members. She is elected by the members. She is elected by the members. She is elected by the members. She is elected by the members.

Naturally with these duties, Madame Presi-

dent has a voluminous correspondence. When I saw Mrs. Patton in her pleasantly feminine office at Washington, she was about to take off for a nine-State midwest and western tour of duty. There was a handsome bowl of red roses on her desk. There was also a typewriter at her elbow.

"We're a little short-handed this morning," she said, "so I'm using my 'hunt and ask' system to get out some mast mail."

What the Daughters Do Tells a Book —and More

What the Daughters Do is the name and subject of a 12-page booklet published by the DAR.

From national headquarters they issue the DAR magazine, containing material of current and historic patriotic interest, special articles, and organizational news.

They publish a monthly *Press Digest*, to guide DAR press chairmen. They print and distribute many other publications of all sorts, including patriotic posters, pictures, and activity booklets.

But no quick summaries or skeleton lists can do more than suggest the broad scope of work that goes on within each of the organization's chosen historic, educational, and patriotic fields.

The traveling public from Maine to California finds the DAR signature on more than 200 historic buildings preserved through this society's efforts, either in cooperation with others or, in certain cases, alone.

Some are owned outright by local chapters and serve as chapter houses as well as historic museums (pages 570 and 595). A number have been placed in DAR custody by civic and State authorities.*

Reproduced or painstakingly restored to original form, often furnished with relics of the past, these restorations include log cabins and mansions, forts, churches, taverns, schoolhouses—even an apothecary shop—that early America knew. Each holds its own bit of the American memory.

To pick a few at random, there is the magnificent Kenmore home in Fredericksburg, Virginia, where George Washington's sister, Betty Lewis, lived.

Hornham Tavern in Machias, Maine, is a reminder of the colonist plot hatched there for the capture of the British ship, *Margaretta*. The plot brought about the first sea battle of the Revolution.

And at Yorktown, thanks to the Daughters' donation of appropriate furnishings, you can see a typical planter's parlor in the old Moore House, just as it must have looked when the articles of British surrender were drawn up there on October 18, 1781 †

At the first DAR meeting the organization's historic work was launched with a resolution to support the then much-discussed project of a burial monument to George Washington's mother, Mary Ball Washington.

Since then, the Daughters have set up more than 12,000 markers at old trails, battle-grounds, Revolutionary graves, and other sites (page 567). They have raised a Pilgrim Memorial Fountain at Plymouth, Massachusetts. In a dozen States, along the National Old Trails Road, they have put up a monumental *Madonna of the Trail* in honor of the pioneer mothers of covered wagon days.

Among current projects is a memorial bell tower to be built at Valley Forge. The tower will house 49 bells and is expected to cost a quarter-million dollars. Feminine postscript to this job of commemorating the hunger and hardships of the terrible winter of 1777-78 is the fact that some of the funds come from the sale of a cookbook of the Daughters' favorite recipes.

Less obviously, but steadily, the routine work of collecting historic and genealogical information goes on. Old records and manuscripts, personal diaries, early maps, and similar material are gathered. Members write papers on people and places of past significance to add to the national file made available to chapters for study and special occasions.

As an aid to tombstone research, headquarters even issues practical hints on how to bring out worn and battered lettering by the use of chalk and other substances. I copied down a couple of the more amusing epitaphs that have found their way to the library:

Here lies cut down the unique trust
A son of Mr. Amos Tice . . .
The means employed his life to save
Hurred him be—long to the grave.

And these somewhat macabre lines:

Beneath this dust lies the moldering trust
Of Eleanor Batchelor Shoven,
Wed vowed to for arts of pies, puddings
and tarts
And the lucrative trade of the oven.
When she'd lived long enough,
She made her last puff
A puff by her husband much praised;
And now she doth lie
And make a dirt pie.
And hopes that her trust may be raised.

DAR Schools Change Life in Mountain Districts

Not everybody knows that the Daughters' educational program provides schooling for

* See "Shrines of Each Patriot's Devotion," by Frederick G. Vashburgh, *NATIONAL GEOGRAPHIC MAGAZINE*, January, 1949.

† See "Edgewater Virginia, Where History Lives," by Albert W. Atwood, *NATIONAL GEOGRAPHIC MAGAZINE*, May, 1947.

Thousands of young Americans each year. Besides operating two schools of its own, the organization partially supports a dozen other authorized schools and colleges around the country, and maintains a large student-loan fund.

In addition, there are special DAR awards presented annually to the man with the highest standing in certain subjects at West Point and Annapolis, as well as at the Merchant Marine and Coast Guard Academies. Once these prizes were swords. Today they take the form of \$100 Government bonds, or the equivalent in binoculars or some such suitable article.

DAR contributions give a lift to two American Indian institutions—St. Mary's High School at Springfield, South Dakota, where Indian girls receive vocational and home training, and Bacone College, in Oklahoma, for both boys and girls. Bacone is the only accredited school for collegiate work exclusively for Indians of all tribes in the United States.

To qualify for aid, a school must be endorsed by the State Daughters, investigated by the National Society, approved by the Continental Congress, and finally, must fill an educational need not otherwise met.

On the eve of World War I such a need cried out to the South Carolina Daughters from the mountainous "sunset corner" of their State, near the Georgia-South Carolina border. There, in the Tamassee Indian region, where an American Revolutionary general, Andrew Pickens, had subdued hostile Indians, the South Carolina chapters established the first independent DAR school.

Called Tamassee, it was destined to bring "back learning," vocational training, and health guidance to the descendants of American pioneers long deprived of these essentials by isolation.

Through the years the project has steadily expanded. For 15 Nation-wide DAR Journeys and some outside aid. One early bequest by a sympathetic mountaineer turned up as a basket of dimes, nickels, and quarters.

Tamassee, "Enterprise in Living"

Today Tamassee occupies hundreds of acres of woodland, orchards, gardens, and pastures. It owns cattle, farm machinery, and a power plant. To its 400 day and boarding students it offers home economics, first aid, practical farming and manual training, along with academic subjects (page 575).

An "enterprise in living" this school has become an integral part of the community. In its chapel the neighbors gather for Sunday services. Its Health House is headquarters for the county nurse, who "jeeps" from there on her regular rounds of mountain-trail homes,

and every year holds reunion check-up there for mothers and their new babies.

Meantime, stimulated by the bright promise of Tamassee, a second school was organized along similar lines at Grant, Alabama. Opened in 1924 and named for Kate Duncan Smith in honor of Alabama's first Regent, it too has grown prodigiously.

Some 550 students living on Gunter's Mountain, beyond the reach of the easy transport of more settled communities, are now enrolled for vocational and other courses reaching to senior-high-school level.

Patriotism Key to DAR Heart and Pocketbook

Key word to all DAR programs is patriotism. The Daughters yield to no one in their enthusiastic support of literally dozens of projects promoting the principles and display of love for America.

The teaching of more American history in the public schools; increased celebration of American holidays; the widespread (and correct) use of the American flag—all are constantly being urged by the organization. Last year, flag committees distributed to schools, colleges and other institutions nearly 4,000 flags, ranging from small ones to a giant-sized gift valued, with its flagpole, at \$1,000.

There are national, State, and chapter committees working for the advancement of American music and for the development of motion pictures dealing with historic and appropriate children's subjects. Steps were taken this year to present an annual award to the producer of what, in DAR opinion, is the best film for children between the ages of eight and twelve.

Since 1895 the DAR has sponsored the Children of the American Revolution, an affiliate organization of boys and girls whose country requirements are the same as those of the parent society. Its headquarters are in Constitution Hall (page 590). Many DAR members, now numbering about 12,000, transfer to the TRAR and the SAR (Sons of the American Revolution) between their 18th and 22d birthdays.

Also under the Daughters' wing are more than 11,000 Junior American Citizens clubs, comprised of hundreds of thousands of boys and girls of all races and creeds. Drawn from public schools, orphanages, reform schools, and various community centers, these junior citizens are taught a yalsty to the American system and citizenship duties, while enjoying the fellowship and entertainment of group activities (page 578).

A hint of the organization's feminine interests is found in its support of Girl Home Makers Clubs.



* Glad Douglas MacArthur and Family Give the Speech DMR Congress

In a speech given at the DMR Congress, the family of the late General Douglas MacArthur, who died in 1951, gave the speech. The family members were present at the event.

* Girl's Company Today's Uniforms with Confined Dress

The Girl's Company today's uniforms are confined to a dress. The uniforms are designed to be simple and practical, reflecting the company's values.





Indiana Room Honors William Henry Harrison, Indiana Territory's First Governor
 Elizabeth Pleasant looks down on the gown made of Mrs. Benjamin Harrison, wife of her grandson,
 President William Henry Harrison, in the room at the Indiana State Fair.



4,000 Delegates and Guests Pack Congress on 11, 1 for the Second Continental Congress
The delegates and guests, 4,000 in all, packed the hall on 11, 1 for the Second Continental Congress.
The delegates and guests, 4,000 in all, packed the hall on 11, 1 for the Second Continental Congress.



Head to Heart Everyone Shows it Attention as Pages County State Flips down the Aisle
With the crowd of people, the first in a series of events, the first of April
the first of April, the first of April, the first of April, the first of April

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1

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Age Group	1980	1990	2000	2010	2020
0-14	25	20	15	12	10
15-24	20	18	15	12	10
25-34	15	15	15	15	15
35-44	10	12	15	18	20
45-54	8	10	12	15	18
55-64	5	8	10	12	15
65-74	15	20	25	30	35
75+	2	3	5	8	12

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[illegible]

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A vertical gel electrophoresis image showing a single, dark, horizontal band in the lane labeled '100' at the bottom. The band is positioned approximately in the middle of the lane. The lane is labeled '100' at the bottom right corner.

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Time (min)	Control (%)	100 μM BFA (%)	100 μM BFA + 100 μM TGN-020 (%)
0	0	0	0
10	15	85	85
20	35	80	75
30	55	75	15
40	70	70	10
60	80	65	10
120	85	65	10

1000
2000
3000
4000
5000

Age Group	Percentage of Respondents
18-29	85%
30-49	80%
50-69	75%
70+	70%

Age Group	Percentage of respondents
18-29	~65%
30-49	~75%
50-69	~80%
70+	~85%

Age Group	Percentage (%)
18-24	10
25-34	35
35-44	25
45-54	15
55-64	10
65-74	5
75-84	2
85-94	1
95+	0

1000

Age Group	Percentage of Respondents
18-29	85%
30-49	75%
50-69	65%
70+	55%

Age Group	Percentage of respondents
18-29	~65
30-49	~75
50-69	~85
70+	~90

Age Group	Percentage of Respondents
18-29	60
30-49	75
50-69	85
70+	90

[illegible]

Age Group	Total (%)	Male (%)	Female (%)	Unknown (%)
18-24	~15	~10	~20	~10
25-34	~35	~25	~45	~15
35-44	~45	~35	~55	~15
45-54	~55	~45	~65	~15
55-64	~65	~55	~75	~15
65+	~75	~65	~85	~15

100

10









Children of the American Revolution Meet at DAR Headquarters

A group of children of the American Revolution met at the DAR Headquarters in Washington, D. C. on Monday, September 10, 1900. The children were dressed in period costume and were accompanied by their parents. The DAR is a national organization of women who are descendants of the American Revolution.

His Party Time for the Ladies, the DAR's Pretty Ushers

The DAR's pretty ushers were the highlight of the party. They were dressed in period costume and were accompanied by their parents. The DAR is a national organization of women who are descendants of the American Revolution.





Ancestor Hunting in DAR's Genealogical Library. Researcher Mary A. May, 1911. The photograph was taken by the DAR's Genealogical Library. The photograph is a black and white photograph of a woman, Mary A. May, sitting on the floor in a room, surrounded by stacks of books. She is wearing a light-colored, long-sleeved top and dark pants. She is looking down at a book she is holding. The room has a white wall with a framed portrait of a woman in a yellow dress and a decorative wreath above it. A bookshelf is visible in the background.



Convention's Work Is Done; 1946 Dangers and Guests Relax at the 1951 Banquet
 2012 Hall of the United States Capitol Building, Washington, D.C. The photograph shows the interior of the Hall of the United States Capitol Building, Washington, D.C. The photograph shows the interior of the Hall of the United States Capitol Building, Washington, D.C. The photograph shows the interior of the Hall of the United States Capitol Building, Washington, D.C.



THE PROCESSION, JAN. 1, 1902.

With Music, Flags, and Flowers the Daughters Say Good-by until the Next Year.

The Procession started for the hall at 10 o'clock, and after a short time, the girls, who were dressed in their best, were seen to enter the hall. The girls were dressed in their best, and the girls were seen to enter the hall. The girls were dressed in their best, and the girls were seen to enter the hall.



* Good Citizenship Earns a \$100 Bond for a Washington Schoolgirl

The DAR Young Women's League of the Washington School has awarded a \$100 bond to a girl who has been a member of the organization for a year. The girl, who is a member of the organization, has been a member of the organization for a year.

* DAR's National Defense Office Maintains Record of Patriotic Material

The DAR's National Defense Office maintains a record of patriotic material. The office is located in the DAR's National Defense Office. The office is located in the DAR's National Defense Office.





A Bit of Old Natchez Moves to Washington Headquarters

Members of the Natchez Chapter of the Daughters of the American Revolution, who are holding their annual convention at the Washington Headquarters, are pictured in the photograph above. The women are all dressed in formal attire, and the setting appears to be a formal event.

A Sidelight of Radiant Smiles: White Dresses Beaming Pages

These are the pages of the Natchez Chapter of the Daughters of the American Revolution, who are holding their annual convention at the Washington Headquarters. The women are all dressed in formal attire, and the setting appears to be a formal event.





There are also committees concerned with the state of the Nation's natural resources and regulation on the subject. As a conservation project of their own, the Daughters recently purchased a grove of redwoods in Del Norte County, California, and dedicated it to servicemen and women of World War II.

One of the best known and most interesting of all DAR contributions is the distribution of its *Manual for Citizenship*, a helpful guide to aliens and foreign-born citizens. A simple summary of American history and Government, plus information on how to become a citizen, this booklet has been given away by the millions since it was first issued in 1920. It is published in 18 languages, including Chinese, Armenian, Yiddish, Hungarian, and Russian (page 374).

The Attorney General of the United States, J. Howard McGrath, addressing the opening session of the Sixtieth Congress in April, 1931, gave unstinting praise to this and allied accomplishments of the DAR toward "fostering and expanding social justice in the United States."

"Your patriotic activities with respect to new citizens," he said, "are a matter of which I have personal knowledge, as the immigration and naturalization functions of our Government are carried on under my supervision in the Department of Justice. Your society has been of immeasurable aid in making each new citizen conscious of the greatness of his privilege of being an American citizen, as well as of his obligations and responsibilities as such."

"In addition, your sponsorship of playgrounds and youth centers, your assistance in settlement houses, your educational program, which affords opportunities otherwise completely lacking to underprivileged boys and girls, your provision of casual and medical clinics and day nurseries, and your entire Junior American Citizens program have helped not only to build constructive citizens but also to combat juvenile delinquency and to insure that the seeds of our bunium fall on unfriendly soil."

National Defense Committee Covers Home Front

At an office in the Administration Building the inquiring reporter finds still another far

reaching field of DAR operations in the office of the National Defense Committee.

"We are the clearing house," modestly explains dynamic Mrs. Frances Lucas, executive secretary of the National Defense Committee (page 394). But the work she guides for her chairman and committee covers more ground than the description indicates.

This committee's duties involve not only cooperation with the community in numerous civic chores and encouragement of education and citizenship along lines of the American tradition. Its leaders also gather and spread information on United States military and internal preparedness, on the Nation's domestic and foreign policy, and on State and national legislation concerning matters of DAR interest. Frequently committee officers testify before congressional hearings concerning pending bills.

Since such activities come under the 1946 Federal Regulation of Lobbying Act, Mrs. Lucas, as the responsible executive secretary, files a report for the lobbyist register published quarterly in the Congressional Record.

It shocked some people," she smiled, "but it was the law. Not everybody remembers that lobbying, like propaganda, can be good or bad."

Visitors Stream Through Office

Mrs. Lucas was an active member of the Coast Guard Emergency Volunteer Service during World War II, and on one occasion suffered frozen hands while helping to evacuate employees from a munitions plant in danger of exploding. Her present assignment may be less exciting, but it could hardly be called *laid*.

Besides attending a continually ringing telephone and seeing a stream of visitors (retired Army and Navy officers, Congressmen, representatives of civic and patriotic groups), she keeps an eye on country-wide legislation of DAR concern. She gathers information for DAR resolutions on national-defense matters, to be submitted for vote at the annual Continental Congress.

She also follows news columns and editorial pages of newspapers in Washington and around the country.

"Whenever possible we cooperate with the editors," she explained, "by sending them information on subjects along our line which we feel they may wish to pass on to their readers."

She pulled out a clipping from a pile on her desk. "Here, for example, is an editorial from the Washington *Times-Herald*. It is called 'Packaged Thinking,' and refers to material which we had made available to the paper, warning women's organizations against glibly accepting ideas now being channeled to

★ Crinoline Skirts Swiss at Columbed Headquarters

Architects consider Memorial Continental Hall's south portion one of the world's most beautiful. Its thirteen columns, arranged in a semi-circle, are dedicated to the Thirteen Original States. Washington Monument looms through the trees.

Sketches drawn by R. Arthur, Howard and Edna E. Fletcher

them through jump-patch control points."

In its routine activities the DAR National Defense office sends out each year, to a regular mailing list, more than 100,000 pieces of patriotic literature. Together the chairman and executive secretary prepare monthly articles for the DAR magazine and *Press Digest* on such subjects as the dangers of communism and United States alliances with other nations.

This last subject takes considerable space, for it is DAR national policy—frequently expressed, that any form of world government involving loss of national sovereignty is undesirable.

Still other matters that concern this office have to do with American groups and individuals cited by the Government as subversive; or certain textbooks and other publications suspected of running counter to the American way.

"We are continually answering inquiries from our members all over the country regarding the standing of persons and publications," Mrs. Lucas told me. "For their guidance in selecting speakers, we see that every State chairman of our National Defense Committee is supplied with the Government's citation jackets and other pertinent information.

"Down in the basement," she added, "are cabinets packed with data on communism alone. We were one of the first organizations to collect material of this sort. Later, it was much used by the FBI and Un-American Activities Committee. Back in the twenties, two DAR members even infiltrated a Communist camp and brought back notes of the goings-on to the home office."

Long List of Wartime Services

In connection with America's overall national defenses, the DAR long has advocated a strong program of military preparedness.

When the country has been at war, the Daughters have been quick to offer their services. During the Spanish-American War, they initiated and helped launch the first official corps of women nurses for the Army and Navy.

A DAR Hospital Corps committee, sparked and directed by Dr. Anita Newcomb McGee, took on the official assignment of screening the flood of applications pouring in to the War Department from women volunteers all over the country. Nearly 6,000 applicants were considered, and about 1,200 of the nurses selected saw active duty.

World War I contributions of the DAR amounted to more than \$3,730,000 in cash and other donations, including gaiters ranging from umbrellas and field kitchens to knitted garments and tobacco.

Besides sending aid to the Government

for emergency office space, and getting its members solidly behind Liberty Loan drives, the organization was active in all sorts of war relief at home and abroad. One of the accomplishments of the "DARlings," as French Ambassador Jussetand called them, was the restoration of a devastated French village, complete with farm equipment, livestock, and a new water system.

Again, during World War II, the DAR piled up a new list of services: 26 million hours for Red Cross work; nearly \$400,000 for the blood plasma fund; blood donations from more than 13,000 members.

Ships' Crews "Adopted"

The Daughters outfitted and sent abroad almost 200,000 "buddy bags." They "adopted" the crews of 89 LCI (Landing Craft Infantry) vessels, for special attentions and gifts. Among its war-time contributions to the services were portable X-ray units for hospital ships, an electric pipe organ for an aircraft carrier, and a radio distribution system, with 2,500 headsets, for a veterans' hospital.

Today, as the Nation gathers its powers for the long and tough job of winning the peace, DAR headquarters once more is organizing for service. Word has gone out asking all members to sign up for whatever civilian or military defense activities are under way in their communities and to be alert for any emergency.

Here in Washington the Daughters tell a story to be added to the vast accumulation of Capital taxicab lore. An out-of-town member, it seems, once asked a taxi driver to take her to the "Revolutionary Building."

"The what?" he asked.

"You know, the headquarters of the Revolution," she told him.

"Sorry, ma'am," came the answer. "You better find another driver. This cab don't get into that kind of trouble!"

It isn't likely that you will see this year's model of revolution at DAR headquarters, 1776 D Street. But you do find there a good deal of determination to serve their country's needs as the Daughters see them.

In a less perilous world and time, back in 1900, an early President General had some words to say that are even more expressive now.

"America's best possession," Mrs. Daniel Manning told the Ninth Continental Congress, "is the devotion of her citizens. . . . We New Yorkers, Californians, Puerto Ricans, Alaskans, and Hawaiians claim her government and protection, and she in turn claims our devotion for her protection.

"This is the mutual link that binds us."

Iceland Tapestry

BY DEENA CLARK

YOU'LL need a passport, a cocktail dress, a little cash, a little good galoshes—and a boundless capacity for astonishment!

The airline executive briefed me as I asked about the trip I planned to Iceland.

I found he was right, especially about the last.

Our swift four-engined air clipper was perhaps inspired when it was christened *Reykjavik* by lovely Madame Thor Thors, wife of the Icelandic Minister to Washington. In early sailing times, 13 days would have been fast time to Iceland, about midway between New York and Moscow (map, page 604). The plane headed northeast-by-east and ticked off the 2,679 miles to Keflavik Airport, on the south western shore, in just 13 hours.

Living Ice Scours Frozen Lava

As the plane approached the crazy island, we saw far ahead gleaming ice domes capping fifty volcanic mountains. Down the valleys glaciers descended like frozen waterfalls. Below us crystalline snow glistened on ebony-black lava. The incredibly blue sea lashed the coast line and spread over ancient lava reefs that turned chalk-white foam to lace.

The small contingent of United States troops which landed last May at the same airport came almost as rapidly, in air transports. The airport, midway between Ernest Harmon Air Force Base, Stephenville, Newfoundland, and Rhein Main Airport, Frankfurt, Germany, is a focal point of European military air transport. Thus Iceland's position still is of the utmost strategic importance, a perfect steppingstone on the great circle air route, halfway between the Old World and the New.

Iceland is a member of the North Atlantic Treaty Organization. The United States troops landed at the proud little island republic's invitation, just as they had in much greater force in 1941, during World War II.*

The 30-mile drive to our hotel gave us a swatch of the Icelandic scenery that was to come. Black, contorted lava fields, unrelieved except for huge snow-covered boulders, spread in all directions. The desolate acres, once molten oceans of boiling rock, looked like a hurricane-whipped sea which had suddenly petrified in all its fury.†

The strange liaison of fire and ice was apparent as we approached the capital city, Reykjavik. The ground was frozen, but all around we could see steam rising through the thin crust of earth from the subterranean volcanic fires below. We saw ducks enjoying a warm pond directly adjacent to skaters on a natural ice rink.

Reykjavik is home to more than one-third of Iceland's people. Now well equipped with American refrigerators and washing machines, the city claims the distinction of having been chosen as capital by the gods themselves.

According to tradition, when Ingolfur Arnarson, a hardy chieftain of the 9th century, approached Iceland, he threw overboard the carved oak pillars from his high seat in his ancestral hall in Norway. As they splashed into the sea, he vowed to settle permanently where they drifted ashore.

After a three-year search, the swollen beams finally were found in a bay in southwest Iceland, near hot springs which sent up white clouds of steam and vapor. Arnarson called his new home Reykjavik, "Smoky Bay," and it has been smoking ever since.

I was amazed at the extreme diversity of the city's buildings.

A modern apartment section is flanked by dwellings of corrugated iron and wood frame. Most of the houses are made of reinforced concrete, as all building materials except stone, gravel, and sand have to be imported.

How the Icelanders cherish the few trees they have! Even if they were large enough to provide lumber, they probably would not be cut for such a mundane use. "One of our great natural resources," Bjarni Gudmundsson, of the Foreign Ministry, told me wryly, "is driftwood."

Farmers Reap a Driftwood Harvest

The farmers in the remote section of Iceland have drawn lots for a long stretch of beach-crests, stony seashore lying many miles away from their farms. They reap a rich harvest of building materials in the wreckage of Icelandic and other boats washed ashore.

The houses (one I saw wore a sod roof with grass growing out of it) looked lousy and bare at first, but soon I felt that they were exactly right for their setting. Bright paint on the rooftops gives color and makes up for the lack of trees and landscaping.

Lustrous calcareous spar, one of Iceland's few minerals, is ground and mixed with sandstone. Added as a rough finish to concrete houses, it sparkles in the winter sun.

"Please tell your friends we don't live in igloos here," an Icelandic implored me. "And while you're about it, maybe you'll say we aren't overrun with polar bears, either," he

* See "Ancient Iceland, New Face of War," 21 days, NATIONAL GEOGRAPHIC MAGAZINE, June, 1941.

† See in the NATIONAL GEOGRAPHIC MAGAZINE, "Walking To & Across Iceland," by Isabel Wylie Hutchinson, and "Island of the Sages," by Earl Hanson, both April, 1928.

added, "sometimes we see them in the spring, if they drift ashore on a moving ice floe—but it's a rare treat to get a glimpse of one."

Cleanliness is the city's most striking characteristic. No ashes or dust mar its appearance.

It is a paradox that the subterranean heat which so often has caused devastation and misery in the past, has brought Iceland one of its greatest boons. Huge natural furnaces which require no human stoking, heat underground water to a high temperature.

Nature Heats Reykjavik Buildings

This hot water escapes to the surface in boiling springs. In numerous pipes it is led 10 miles to a pumping station and then into quarter-million-gallon tanks squatting on a high hill on the outskirts of Reykjavik. From there it flows into radiators at about 115° F., keeping the city's homes and offices cozy even in blizzard weather.

Water flows from the hot springs at more than two hundred gallons a minute, with more always on tap. Formerly Reykjavik burned about 35,000 tons of exorbitantly priced imported coal each year. Now she's spic and span, with no chimney sweeps to pay. There's enough hot water left over to warm a glistering, tiled swimming pool that is in constant use, summer and winter.

Men and women in the business area were well-dressed and prosperous looking. Some were on their lunch loaf from the small factories which produce clothes, soap, soft drinks, cereals, or furniture. Others had just walked the block and a half to town from the busy fishing wharf and shipyard.

The Icelandic bers we met were handsome and splendidly built. They looked as if they might have stepped right out of one of the Viking sagas. In most familiar fairy tales the heroic actions of the prince deliver the princess. In many Icelandic tales it is the young princess who rescues the hero.

The descendants of those ancient heroines, who, with their men, survived centuries of intermittent volcanic eruption, earthquake, famine, and plague, continue the tradition of strength combined with beauty. Modern Icelanders are usually fair with blue eyes and light complexions.

One of the sagas tells of the birth of brunette twin sons to a wealthy and powerful early settler. They were born in the absence of their father, and the mother was so alarmed at their dark complexion that she exchanged them for the fair-haired sons of a local man in the household. The twins were given the surname *Hefþurkinn*, "Hell-skin," indicating that for a long, long time Icelanders have preferred blonds.

There is nothing cold about Icelandic hospitality. The people are apt to be rather reserved with a stranger, but at his transformation into a guest, their thoughtfulness knows no bounds.

Morning coffee at Bishop Sigurgeir Sigurdsson's was a memorable party. His home, like that of almost everyone in Reykjavik, flaunts starched, immaculate white-lace curtains at every shining window. Inside, ivy and smilax were trailed over stairways; a green and inviting welcome.

The bishop's attractive wife received us in the charming national dress (page 615).

The homelike repast introduced us to flaky pastries, homemade cookies, and bread freshly baked in an American oven. The electricity was generated by the current of the nearby river bog.

We tried the ever-present *skyr*. Made of cow's milk, it tastes like a combination of tart whipped cream and smooth cottage cheese. "An excellent baby food," our host told us, "because of the calcium content." It is also an excellent tourist food—because of the taste and cost.

The food in Iceland is superb, especially the fish—fresh-caught and sweet. Ordinarily, fish is my last resort choice on a menu, but in Reykjavik I could not get enough of it.

We sat down to a *smörgýslur* Lanquet that offered 13 kinds of sea food, including *hard-pókur* (a dried fish with a nutlike flavor), and 14 varieties of meat and fowl.

"Angel Shrimp" a Special Delicacy

My special choice was a tiny, delicate, pale-pink shrimp, no longer than a baby's tiny fingernail, aptly called "angel shrimp." Served with a special sauce and piled on dark, rich bread, it made me want to stay in Iceland forever.

The water in Iceland matches the excellence of the table fare. Sparkling-clear and filtered through many layers of porous lava rock, it is so pure that it can go directly into car batteries without distilling.

After "tea" at 11 o'clock, Icelanders break the long wait between 1 o'clock lunch and 7 o'clock dinner with 3-30 "coffee time." Then they indulge their sweet tooth with fancy tarts, cream or chocolate filled, or, in season, wild strawberries and mountain blueberries.

The sun streaming through the windows of the bishop's dining room lighted up walls literally covered with excellent paintings.

In many homes hang canvases by Johannes Aharval, Jon Steinarsson, Jon Hagilbertz (page 625), and others that reflected the Icelanders' intense love of his country and its majestic beauty.

Scenes of fishing coves, glaciers glowing



Lyfonia's Sundry Catch for Southern Markets

Photo shows a large quantity of the catch of the Lyfonia fishery. Some of the catch is sold in the Lyfonia market, but most of it is sold in the Southern markets. The Lyfonia fishery is a very important one for the Lyfonia people.

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Museum for Lyfonia Sculpture

The Lyfonia fishery is a very important one for the Lyfonia people. The Lyfonia fishery is a very important one for the Lyfonia people.

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Adapted from the U.S. Navy Chart of Iceland

Iceland, Atlantic Steppingstone. Lies about Halfway Between New York and Moscow.

Iceland's name is misleading, for an arm of the Gulf Stream warms its shores, and perpetual snow covers one eighth of its 39,750 square miles. Volcanoes through the centuries have smothered a large part of the island with lava. Population is sparse—three persons to the square mile.

the statue unveiled in Philadelphia in 1920. It depicts Thorfinn Karlsefni, an adventurous Viking, and, according to the sagas, the first white man to settle in America with his young wife.

Long before our country was even a gleam in Columbus's eye, our continent was visited A.D. 1000 by Leif, son of Erik the Red. Karlsefni's son, Snorri, is said to have been born on the North American Continent, possibly in New England, in 1003. So, if the story is true, the first white child born in America was an Icelandic.

The most comfortable thing about the Hotel Borg, after the heavenly light and warm eider-down quilts and the intense quiet filling the halls, was that everybody spoke English.

Reykjavik boasts theaters where American movies are taken straight, with no chatter of Icelandic subtitles. Probably the six-year stay of our United States troops during World War II helped perfect the "American" we heard everywhere.*

Many Icelanders knew Stephen Foster by heart, and were as nostalgic about *My Old Kentucky Home* as if they had been born on a plantation instead of in a fishing cove.

We heard remnants of Yankee wisecracks on every hand. "Let's sit here, Hilda, and watch the fjords go by!" Our boys learned enough Icelandic to call a girl a *stúlka*, and

were successful in talking many of them into holy wedlock.

American soldiers had their influence on the monetary situation as well as the matrimonial. Our army command used local labor for construction work, since Iceland has neither army nor navy to draw on, having declared herself permanently neutral.

The unit of currency is the *króna*, which is rated at about 16 to the dollar. "Working for the American army was a pretty good thing," a local man once remarked, "because you were paid in dollars."

With the high wages paid at the American installations, and little to spend money on, prices rose rapidly. The present inflation, therefore, to a certain degree is due to the influx of the thousands of men who were invited to enter Iceland to protect the newly-coveted "unsinkable aircraft carrier."

Choice Handicrafts Sell Despite Inflation

The cost of Icelandic living has increased tremendously since prewar times. For instance, United States cigarettes, sold at a Government monopoly, cost 74 cents a pack. Most things cost about five times what they did before the war.

The severe rise in prices, however, serves

* See "American Soldier in Reykjavik," by Corporal Luther M. Chovan, *NATIONAL GEOGRAPHIC MAGAZINE*, November, 1945.

only to challenge the visitor stalking Laryngus to take home. There are shops full of souvenir handkerchiefs, neckerchiefs, pillowcases, all printed or embroidered with Icelandic scenes. There are desk sets beautifully carved in wood by the sculptor Rikharður Jonsson.

There is French perfume minus our American luxury tax, and bubblelike glassware from Czechoslovakia. There are sealskin gloves and purses locally made, as well as sheepskin rugs and bath mats. Handmade woolen mittens and sweaters, using patterns handed down from saga times, line the shelves.

The economical buyer can find luxuriant silver, blue, and white pelts on the fox farms that dot the island. The raw fur is relatively inexpensive, especially minus our tax, and it can be made up here at home.

Icelandic eider down is a choice offering in the shops. The female eider duck plucks the valuable down from her breast and uses it to line her nest. It is collected at regular intervals. The puff sleeping bags made up for tiny babies are ideal for rock-a-bye purposes.

Any mother can delight her little girl with a doll dressed in Icelandic costume, like the one that Mrs. Olaf Johnson sent home to mine. She will have the blond braids rope, and twisted under a velvet tam, and the sequined dress bodice, laced with gold thread stitched like filigree.

The clanking yet delicate filigree bracelet I could not resist in Reykjavik meant more to me after I went to a jeweler's to see the shining silver wire actually curved and blazed into links of leaves and flowers.

Gönbundur Gudnason is considered the most skilled gold and silversmith of the country. He learned the craft at the age of 15 from his father, and has been at it himself for 50 years. He told us it would take five days to make the silver belt that is traditional with the national dress. He has entrusted some costumes with as much as \$1,500 worth of silver linings, buttons, and ornaments.

It seemed surprising to find snuffs in Iceland, a country with practically no metals, until we were told that the first settlers brought much silver with them in their small boats. They chose it because it took up very little space in comparison to its value. In the early days it was so abundant that the beams of temples were covered with it.

Weather Changesable but Not Severe

The weather was wonderful for our trip to the university, high on a hill about twenty minutes from the center of town. A drizzle was crystallizing as it fell and dredged the city with sparkling powdered sugar.

The weather was one of the most amazing and pleasant surprises of Iceland. The coldest

thing about the country is its name. When we took off from La Guardia Field, on St. Patrick's day, it was 31° F., and when we landed at Keflavik it was a matching 31°.

An arm of the warm Gulf Stream makes the climate like that of southern Canada. New Yorkers often shiver in winters far more severe than those in Reykjavik. January is the capital's coldest month, averaging about 32° F. Chicagoans endure an average of 25°.

Average summer temperature is 52° F. Mercurial changes are the rule. Twenty-four hours' worth is sufficient to give you a good sample of everything the weather has to offer.

The early morning may bring a day that is sunny, crisp, and invigorating. By 11 o'clock the skies may loose a winter wind so strong you cannot stand upright while crossing the street. During a heavy storm, with a wind blowing at top speed, it snows horizontally.

Iceland Warnings of Storms

The Meteorological Institute in Reykjavik gathers information on weather conditions in various parts of Iceland and from foreign stations, broadcasting 24-hour forecasts two or three times a day. These are of inestimable value. Storms coming from the west are usually first discovered around Iceland.

The English joke about the continual radio warnings of bad weather approaching from Iceland—"and implore her to stop exporting cyclones—to sea and enter town instead!"

One hundred and forty lighthouses around Iceland's shores aid mariners of all nations who ply the perilous North Atlantic.

The new University of Iceland, with an enrollment of 600 students, was built by a people who like to take a chance. In 1933 the Government authorized a national lottery to collect a building fund—sold 75-cent tickets, and each month paid lucky winners \$25 to \$15,000.

The educational gamblers have built a modern campus consisting of a main building, a dormitory, and three other halls.

An unusual source of revenue for the university was a downtown movie theater operated by the faculty. When we were there the cash registers were ringing to the tune of a repeat run of *For Whom the Bell Tolls*.

Practically everything about the university was made in Iceland. The reddish lava stone and granite walls are studded with polished sea shells. The entrance dome, blue as the sea, sparkles with Icelandic onyx and iridescent mother-of-pearl. The beige faculty lounge, with large view windows overlooking the lake where skating children whirl through their figure eights, is curtained and upholstered in wool woven locally.

The chapel, setting for a genuine altar, boasts a miniature theater switchboard panel.



Seamans Grow Vegetables and Flowers in Soil Heated by Volcanic Springs

Seamans grow vegetables and flowers in soil heated by volcanic springs. The soil is heated by volcanic springs, and the vegetables and flowers are grown in the soil. The soil is heated by volcanic springs, and the vegetables and flowers are grown in the soil.

"It is up the curving walls of cerulean blue hills, the Icelandic sky in summer."

It is a very good description of the scenery. The hills are very high and the sky is very blue. The water is very clear and the fish are very large. The people are very friendly and the food is very good. The weather is very nice and the sun is very bright. The people are very happy and the life is very good.

There is no illiteracy in Iceland. In the past, the illiterate could refuse to come to the market, but now everyone who could not read and write is now literate.

Books Big Item in Budget

Today, all children between the ages of 7 and 15 in Iceland receive one book each month. This is a very good thing, as it helps to educate the young people. The books are very good and the children like them very much. The government is very good to the people and the people are very happy.

In Reykjavik five daily newspapers and many weeklies print enough copies to supply every man, woman, and child in the city. The government is very good to the people and the people are very happy.

And each Icelandic spends approxi-

mately \$50 a year for books in his native language. The ones I saw in book stores included *Saga of Huckleberry Finn*, *Don Quixote*, *Hans og Gret*, and *Anna Karenina* by Steinbeck.

In addition to books published in Icelandic one of which, *Indriði and Póss* by Halldor Laxness, was a beautiful translation of a foreign book, many foreign books are imported. The parlors of the farmers' homes are filled with books, and the Bible is bound in shark-skin. There is a well-used selection of world literature in the original language.

The National Library holds with some 70,000 printed books and about 1,000 manuscripts. It is a fine collection of books, given by the National Library of the United States of America to the people of Iceland.

The nation was interested in the game of football. While we were there two players who came all the way from New Zealand were giving exhibitions. During the week they had audiences of four hundred and even more people.

Four other interesting features, besides the National Library, are the National Library, the National Library, the National Library, and the National Library. And the books circulate, too, summer and winter.

the early Norsemen. They were the clue to how one-third of all Icelanders live.

Outnumbering the people nearly three to one, sheep are the mainstay of the country's agriculture, providing the farmer with food, clothing, and cash. Loosed to feed for themselves during most of the year, the flocks are driven down the valleys into huge, communal, lava-stone sheep-sorting corrals in early fall.

September 20th is usually round-up day, and is one of the great occasions that keeps the shepherd down on the farm. He counts his wealth-on-the-hoof, drinks a little wine, dances with his neighbor's wife, and sends his children off to make new acquaintances.

The Icelandic farmer leads a hard life. Less than one percent of the land is cultivated. To wrest potatoes, turnips, and rhubarb from it requires infinite back-breaking work and an island-wide Government aided cooperative association.

Farmers suffered for nearly a century from the results of the most devastating volcanic eruption their country ever endured. In 1783 a tremendous fissure 20 miles long split the earth southwest of Vatna Jökul, forming more than a hundred cones, each with a crater.

For months explosions rocked the island, throwing out an immense quantity of lava and ash—enough material, it has been estimated, to build a mightier mountain than Mont Blanc, Europe's highest.

The molten lava laid waste flourishing districts. Ash covered the country. Vegetation was killed. Seventy percent of the livestock was lost, and 20 percent of the people died in the famine which followed.

Hay is the principal crop today. Drained low-lying farmlands produce two or three cuttings during the short summer season (pages 620 and 630). Fertilized with rich fish-bone meal left over from the previous season's catch and warmed by the long hours of sunlight, the grass grows rapidly.

Native Pony Is Iceland's "Jeep"

At harvesttime each remote farmhouse seems to be flanked with perambulating haystacks equipped with four slender legs. They turn out to be the indispensable little Icelandic pony, bearing huge bundles of hay.

No visit to Iceland is complete without making the acquaintance of the gentle, sure-footed, faithful, obedient, native pony, 4 to 5 feet of perseverance and intelligence (pages 626 and 630).

He carries Iceland on his back at work and at play. He fords powerful and swift-running rivers one day and proudly wears his owner's colors at the frozen race track the next. No work is too difficult for him, and he costs practically nothing to keep.

The Icelandic pony lives on what he is able to graze for himself in the summer, with perhaps a little seaweed for garnish. In winter he is fed hay and a little grain, and is fat and shaggy. I saw ponies grazing unconcernedly in a blizzard, pawing the snow aside to get at the grass, or perhaps to uncover a dried codfish head provided for dessert.

In the old days, the Icelandic farmhouse was built of porous lava stone with a turf roof. It gave the impression from the outside that anyone taller than a child would have difficulty in doing much upright living in it. Actually, for warmth, the walls were sunk into the ground as much as four feet (page 622).

The modern farmhouse is made of concrete and often is equipped with its own electric plant, built at home and utilizing the power of the nearest waterfall. The house is immaculately clean, even to the snowy bed linen with *Dreoni thið vel* (Dream thee well) embroidered on the quilt.

7,000 Pounds of Fish Per Person

If Iceland's land is poor, its sea is rich. It yields a beautiful harvest, amounting in normal years to approximately 7,000 pounds for each person in the nation.

On their home fishing grounds the Icelanders compete with 11 other nations (page 616). During the winter nights, some of the fishing banks look like floating towns, lights bobbing on the ships packed side by side.

The Icelandic fisherman's technique has progressed greatly since the 9th century, when rowboats and hand lines limited him to fjords and the nearest offshore banks.

Today airplanes are pressed into service to scout shoals for an extensive fishing fleet consisting of motorboats and modern steam trawlers equipped with echo sounders, refrigerated holds, and direction lights. Powerful radios on board are tuned continuously to market reports so that the right haul may be fished for at the right time. They use every navigational aid, and no minute is wasted.

At special times in mid-summer, when literally layers of herring surge in thickly packed shoals to feed on billions of minute organisms, Icelanders in small boats surrounding the mass have hauled in as much as 1,500 barrels in one cast. An ordinary day's catch is 1,000 barrels.

For the past six years fishing has been poor off the northwest coast, where most of the herring normally are taken. Dwindling catches have meant a considerable loss of foreign exchange for the Icelandic Government. Prospects, however, were better this past summer, when early reports indicated that the herring had returned to their old grounds in large numbers.

Ninety percent of Iceland's exports are fish and fish products. Last year the volume of these shipments decreased by one-third.

One of the greatest wharf centers for herring in the world is at Hafnarfjörður (pages 115 and 169). During seasons its normal population of about 3,000 swells to nearly 10,000, and there are often 200 ships crowding its harbor at the same time.

The town village has five large factories where oil and meal are made from the catch. Less than an hour passes between the time the fresh herring leaves the ship's hold and its conversion into meal for fodder or fertilizer, or oil for soap, margarine, and explosives.

Some fish, especially cod, haddock, and plaice, are exported wind-and-sun-dried, preserved in oil or vinegar, to the European markets. Reykjavik has one of the most modern fillet plants in the world, with compressors and freezing units purchased from the United States.

During the war, Iceland's fish provided a great deal of the protein needed for the United Kingdom's food program.

More cod comes from the Iceland fisheries than any other one place on the globe. In 1922, fishing many thousands of hooks are baited and dropped into the water at one time.

A Premium Grade of Cod-liver Oil

More than 200,000 large cod have been caught in one day by long-line fishing off the Westman Islands (Vestmanna Eyjar). In winter, catches there have been fish on every other hook or a large one and a smaller one on long.

The sun-rich Icelandic cod liver oil is sought out by conscientious consumers all over the world, brings a higher price in the market than that from any other fishing banks.

Some Icelanders are grateful to the cod



Bread, Buried in Hot Sand, Bakes at Langarvatn

Hot sand, 100 to 150 degrees, in places is common in the Langarvatn area. Bread is baked in the sand for fuel. The bread is baked in 24 hours.

for far more than the property it brings to the land. It is really responsible for the fact that, in a country that enforces a strict prohibition monopoly, a citizen can quench his thirst with a glass of Spanish wine whenever he has a mind to do so.

In 1915 when the sale of alcoholic beverages was prohibited, there were repercussions from Barcelona.

"If you do not buy our wine, we cannot buy your fish," was the ultimatum.

Spain, a Catholic country, once a favorite place to rest on the table on certain days of the year, was Iceland's best customer. Her thirst for a high import tax was so great that in 1922 Spain had her way. Spanish wine



again flowed in Iceland. Prohibition was superseded in 1935 by a state monopoly.

We were served, on several occasions, the locally made *brennir* (Larut wine), which the American soldiers called "black death." It was brewed, they were sure, by a process of nuclear fission. Then there was the colorless, faintly anise-flavored Icelandic aquavit.

The Icelanders are justly proud of their Government—a democracy with strong socialistic leanings. They can trace their progressive measures back more than a thousand years, to the darkest ages when other European nations were ruled by despotic monarchs.

Iceland had trial by jury and a people's parliament that assembled on the open lava-plain of Thingvellir 300 years before the English Mother of Parliaments convened.

This "Grandmother of Parliaments" even had a smooth-running, effective OPA in 930. No trader could sell his wares until the local chieftain had approved his prices.

Every year inflation or deflation was checked by public assembly deciding the value of various commodities; how many fish could be exchanged for one *ala* (24 inches) of homespun cloth; how many head of sheep for a cow or a horse; and how many days of labor for a logging.

In the 13th century Iceland acknowledged King Haakon of Norway as her nominal head. She came under the Danish crown in 1380, not severing that tie completely until 1944. At that time 93 percent of all eligible Icelanders, including the women, who had had suffrage since 1915, voted to sever the union with Denmark. Nearly all who voted favored establishing an independent Republic.

Today's constitution is based on the United States Declaration of Independence and the French Rights of Man. Iceland has a President, six Ministers (equivalent to our Cabinet), and 52 members of a Parliament corresponding to our Congress.

The present Parliament consists of seven Social Democrats, backers of labor unions; nine Communists, who ask for government ownership of utilities and means of production; 17 Progressives, who are agrarians, favoring cooperatives; and 19 Independents, their platform calling for financial and political independence, free trade, and individual initiative.

"Same Work Mr. Roosevelt Did"

I found that some Icelanders had difficulty in remembering the title of the Honorable Sveinn Bjornsson, head of their state. "You know what it is," an earnest taxi driver urged me. "He does the same work your Mr. Roosevelt used to do."

Mr. Bjornsson's work was being President!

There is no Vice President. If the President dies, three men replace him until a new President can be elected. The power falls to the Prime Minister, Speaker of the Parliament, and the President of the Supreme Court.

In many ways Iceland offers an excellent pattern for successful and enlightened government.

When questions of great importance occur, such as those dealing with prohibition and compulsory national service, Parliament may submit them directly to the people for an expression of opinion.

Nobody is ostracized for his political opinions. Everyone is given credit for believing as he does for honest reasons. Occasionally, each member of a large family belongs to a different political party.

Christianity Conquered Ancient Gods

On Sundays nearly all Icelanders go to the national church, which is Evangelical Lutheran, but there is complete religious freedom.

This has been so since the year 1000, when the merits of Christianity and paganism were publicly debated before a great gathering at Thingvellir, and the old Norse gods lost.

Christianity won over a group including Thor and Idun. It was Idun who kept a box of apples which the gods, when they felt old age creeping on them, had only to taste to become young again.

Heimdallur, the watchman of the gods, was also among those defeated, despite the keenness of his ears. He could even hear the sound of grass sprouting on earth and wool growing on a sheep's back.

The decision of the ancient chieftain Thorgeir ended the prolonged debate and days of tortuous deliberation in his tent. To insure the advantages of only one set of laws for the country, paganism was to be discarded.

Every man was to be baptized, but it would be permissible to bow down to the heathen gods within one's own home.

A typical convert was Helgi the Lean, who renamed his homestead Krastnes, in honor of Christ. In preparing for perilous sea voyages, however, for double insurance he sacrificed to and worshiped Thor.

Icelanders also dip into the state treasury for medical aid. Health insurance is compulsory for all between 16 and 67. In case of illness, the insured bears two-thirds of the expense, the Government the other third. Complete hospitalization is also guaranteed. Here the Government pays three-fourths of the cost of medicine and a specialist's care. Excellent state-paid physicians are on call at all hours of the day and night.

Old age is the most prevalent cause of death in Iceland. The saying goes that this is



Modern Icelanders, Fair and Athletic, Trace Their Descent to the Vikings

As the sun shined through the trees, the young man, who was a member of the Red Cross, stood in the foreground, holding the flag of the Red Cross. The background was a soft-focus landscape with green foliage and a blue sky.



1. The first step is to identify the problem. This involves understanding the current situation and what needs to be changed.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that proper record-keeping is essential for transparency and accountability, particularly in financial matters. The text suggests that organizations should implement robust systems to track every aspect of their operations, from procurement to sales, to ensure that all data is captured and stored securely.

2. The second part of the document addresses the challenges of data management in a rapidly changing environment. It highlights the need for flexible and scalable solutions that can adapt to new technologies and evolving business requirements. The author argues that organizations must invest in training and development to ensure that their staff are equipped with the skills necessary to manage complex data sets effectively. Additionally, the text stresses the importance of regular audits and reviews to identify potential weaknesses and areas for improvement.

3. The third part of the document focuses on the role of technology in enhancing operational efficiency. It explores various digital tools and platforms that can streamline processes, reduce errors, and improve communication. The author notes that while technology offers significant benefits, it also presents challenges, such as data security and integration with existing systems. Therefore, organizations must carefully evaluate their options and implement a balanced approach that maximizes the advantages of technology while mitigating its risks.

4. The fourth part of the document discusses the importance of collaboration and teamwork in achieving organizational goals. It argues that no single individual or department can succeed in isolation; instead, success is achieved through the collective effort of all team members. The text provides several strategies for fostering a collaborative culture, including encouraging open communication, setting clear roles and responsibilities, and providing regular feedback and support. The author concludes that a strong team spirit and a commitment to shared success are essential for long-term growth and sustainability.

5. The fifth and final part of the document offers concluding thoughts and recommendations. It reiterates the key points discussed throughout the paper, emphasizing the need for continuous improvement and adaptation. The author encourages organizations to stay informed about the latest trends and best practices in their field and to be proactive in addressing any challenges that may arise. Finally, the text expresses optimism about the future, believing that with the right mindset and resources, organizations can overcome any obstacle and achieve their desired outcomes.

Improving Learning in the Workplace

1000



Legend: Teaching (T) and Learning (L) Activities

[illegible]

Electromagnetic Interference
Exclusion from Liability
Exclusion of Damages



Swedish Fishermen Crossing Icebergs With Wooden Traps and Silver Hooks

When the icebergs are out of the water, the fishermen will be able to catch the fish. The fish are caught in the traps and the silver hooks are used to catch the fish. The fish are then sold to the fishermen.





• *Social-Fair-ly*
Savvy-Hung
Smart-Peasants
Food-for-Market

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Good Summer Time Agriculture, Hay Is the Main Crop

Summer is the best time to visit the country. The weather is just what you need. The crops are in the best of health. The scenery is beautiful. The people are friendly. The food is delicious. The accommodations are comfortable. The prices are reasonable. The service is excellent. The overall experience is a most enjoyable one.

Peonies Bloom under the Alder at Seco as a Rockwell Garden

The peonies are in full bloom. The flowers are large and colorful. The garden is well-maintained. The peonies are a beautiful sight. The garden is a great place to relax and enjoy the outdoors. The peonies are a great addition to any garden. The garden is a beautiful sight. The peonies are a great addition to any garden.





Volcanic Isles Gapped with Grass Rise from Myvatn's Sunlow Depths

Volcanic islands were once a total group and have since been separated by the Myvatn. It is one of the few places in Ireland where the sea is so close to the land.



A Woman at Port Jervis. The Little White House in the Background. Part of the Building Rests upon Ground Level.



Fig. 10. The building at the head of the lake, showing the red brick section.

[Let us now turn to the first question.]

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that proper record-keeping is essential for transparency and accountability, particularly in financial matters.

2. The second part outlines the various methods and tools used to collect and analyze data. This includes the use of surveys, interviews, and statistical software to ensure that the information gathered is reliable and valid.

3. The third part focuses on the ethical considerations surrounding data collection and analysis. It stresses the need to protect individual privacy and to use the data responsibly, ensuring that it is not misused or shared without proper authorization.

4. The fourth part discusses the challenges faced in the process of data collection and analysis. These challenges include issues related to data quality, sample size, and the potential for bias, which must be carefully managed to ensure the integrity of the research.

5. The fifth part provides a summary of the findings and conclusions drawn from the study. It highlights the key insights gained and offers recommendations for future research and practice, based on the evidence presented.





Tourists Venture down a Glassy Slope to View Themselves in Roubidoux County's Dark Mirror

By the Roubidoux River, where the water is so clear that it is like a dark mirror, tourists are flocking to see their reflections in the glassy surface.





Gaunt Lone Hills Meet a Snow-covered Glacier High in the Interior
Mtn. in the distance and a wide view of the wide and deep canyon.

because, having paid for his services, they call the doctor every time a faucet leaks or a fuse blows out!

"How much taxes would an Icelanders pay who had a yearly income of \$10,000?" I asked Thorvald Thorvaldson. His reply was immediate: "Eleven thousand dollars."

Though they joke about high taxes, they are really very proud of their Government-sponsored roads which formerly were mere paths, despite their black outline on tourist maps.

Iceland Has No Railroads

Iceland does not boast even a foot of railroad track, but a visitor can circle the is and by car. Busses with a seating capacity of 20 ply regularly between Reykjavik and Akureyri, the "northern capital."

Taxes also enable an Icelanders to pick his entertainment out of the air. Many a long winter night is diled away at the Government-owned radio. Each receiving set is taxed to operate the two broadcasting stations.

The fare consists of talks and lectures given by the leading men of Iceland; straight news broadcasts; foreign languages taught by experts; and music, from American jazz to symphonies.

The National Theater, newly completed, is a prize monument to sensibly planned Government taxation. It is being paid for entirely out of amusement taxes collected at movies and ice rinks.

The Dramatic Society of Reykjavik, which we saw touring the island performing *Our Town* and *An, Wilderness!* is all set to step onto the ultramodern revolving stage. Fitted with hydraulic lifts and the most advanced lighting equipment, the acting platform is as most as large as the auditorium.

In the last analysis, the best thing a traveler in Iceland can do is travel. He will find the country might just as appropriately have been called "Ffirland," for the two mighty forces of ice and fire combine to shape this island of weird majesty. Glaciers and volcanoes exist side by side.

Vatna Jokull, on the southeast coast, is more than 3,300 square miles of immense central ice dome with icy fingers reaching almost to the southern coast.

Snowcaking beneath this enormous ice mountain is part of the most active volcanic area in Iceland. The buried fires often erupt melting and rending the solid ice above them.

Vatna Jokull's icy tentacles reach out into Gollubhraun (Mistoverrun's Secret), one of the largest lava fields in the world.

Hundreds of giant craters, boiling caldrons of mud, and rimmer cones make one think he is looking through a powerful telescope trained on the moon.

Still-active Hekla, one of Iceland's 120 known volcanoes, can be flown over by plane: a local company has aircraft for hire for this purpose. In former times, Hekla was thought to be the 5,000-foot chimney of hell.

During the past nine centuries it has erupted 21 times, living up to its reputation as the only outlet to the surface of the earth possessed by the Devil himself (page 602). Its name has found its way into many languages, for from it come the "Get you the Hecken-fjeld," of the Danes; and "To Hackleberg," of the north Germans.

At Myvatn I saw fantastically shaped islands, and weird castles and crazy giants formed of lava rock that look like petrified sponge. They were made when flaming lava poured sizzling into the lake (page 621).

Fifteen miles north of the water falling in white garlands over Dettifoss, lies the huge footprint of Sleipnir, steed of the god Odin. It rises from a flat lava plain, encircled by a 250-foot rock wall.

In the southwest, reached by a fairly good road, tumbles Gullfoss, the "Golden Fall." It crashes down 164 feet to shatter in foam in the midst of a lava desert. The water roars in a sudsy sheet 400 yards wide, shimmering with all the rainbow's colors when the sun strikes it.

Tradition says that Gullfoss, "Waterfall of the Gods," won its name when Thorgerd hurled the images of his household gods to their doom in the thundering deluge. Gullfoss rages in a grim and barren wilderness that lies close to the main road between Akureyri and Husavik.

A water fall in reverse is Great Geysir, which has shot a jet of boiling water into the air off and on for centuries. It has been known to reach a height of 220 feet. It is very accommodating; a 20-minute command performance can be coaxied out of it with a charge of surface-tension relieving soap.

Great Geysir Gave Name to Natural Fountains

Such erupting fountains of hot spring water, found all over the country (page 610), were unknown to Europeans before the discovery of Iceland.

Now every tourist recounting the wonders of Yellowstone National Park speaks the tongue of Eric the Red when he says "geyser," which means "to rush furiously."

Iceland is the camera enthusiast's paradise, where he can see great distances through the unusually transparent atmosphere.

Mount Esja, a 2,982 foot block of ice-covered lava, seen from the streets and windows of Reykjavik is a constant kaleidoscope of color under the changing play of light (page 611).



ICELAND PONY, IDENTICAL TO FORTUNE, DRAWS A RAKE ACROSS A LAVA-RIMMED MEADOW

ICELAND PONY, IDENTICAL TO FORTUNE, DRAWS A RAKE ACROSS A LAVA-RIMMED MEADOW

Some of the most beautiful and most interesting of the Icelandic ponies are the "Lava" ponies, which are found in the lava fields of the country. They are small, but very strong and hardy, and are well adapted to the rough and rocky terrain of the lava fields. They are also very intelligent and obedient, and are often used for riding and for pulling heavy loads.

Though they do not have to unload their heavy loads of chrome after supper, either in the city or in the country, they are still very busy. Iceland in July. An American soldier played football in the night; and the old man came to the house, Dr. Arni Hegason, told me he came home at 12 and was running to find his neighbor Indriðason, engaged in giving his house a new coat of paint in broad daylight.

Warrior Maidens' Armor Reflects Aurora

There is one final delight in Iceland that never fails to stir the visitor. That is the aurora borealis, dancing across the heavens with colors and curtains of light—mauve, green, and white.*

Legend says that are the Valkyries, chosen by the gods' warrior maidens and given horses, shields, and spears. Most of the stories say they were sent by Odin to every battle. The most common story was told of them at the time of the ultimate contest between the forces of good and evil.

As the Valkyries rode forth their armor shined with strange, brilliant colors. When they saw the northern lights they knew the

warriors were riding forth in their quest for horses to conduct to Valhalla.

When our scheduled departure time arrived I was a complete, complete convert. Iceland wanted to keep us, too, we think. It stormed. The snow swirled against the airport lights and an 80-mile-an-hour wind tried to keep us from crossing the field to our big plane.

We taxied for half an hour to be sure there were no obstacles on the snow-laden runway. Finally the roar of 8,800 horses settling into harness told us we were on our way home. Thirteen hours and one minute later our plane was being refueled at La Guardia Field.

The customs officer asked only three questions: my elder son, and my little girl's doll.

"Is this all you have to declare from Iceland?" he asked.

"Yes, sir," I answered.

Neither the reporter nor I could possibly have set a value on the memories I carried home from the land of the gods. They were a store of snaggled words, events unlike from any and contradiction.

* See "The Land of the Northern Lights," by W. H. Garrison, in "The Northern Lights," New York, 1907.

"Rockhounds" Uncover Earth's Mineral Beauty

By GEORGE S. SWITZER

Associate Curator of Mineralogy, U. S. National Museum

YEARS ago when I first became a "rockhound," I collected and analyzed minerals in Death Valley, California. At nightfall we built a fireplace with several large rocks, started a fire, and sat some beans to heating.

Then suddenly our fireplace began to explode! We had not realized that the rocks contained colemanite, a mineral which violently flies apart into a powder when heated.

Our dinner that night consisted of a hard-to-digest mixture of colemanite and beans. Thus, in a rather explosive fashion, we added one more item to our knowledge of minerals.

Hobby Dates from Earliest Times

The world's first mineral collector probably was some savage whose eye was attracted by the beauty of a colored pebble or shining piece of rock crystal.

From earliest times men have collected attractive stones, minerals, and unusual fossils and often have looked with superstitious awe upon specimens whose origin they could not explain.

Fossilized shark's teeth long were thought to be objects which fell to earth during eclipses of the moon. Some ancient peoples even believed that certain stones brought forth young!*

Today's rock hunters, free of superstition and armed with true understanding of Nature's processes, are finding beauty hidden in the most prosaically unsuspected not only by their primitive forebears but by most people even in modern times.

Rockhounds don't just collect rocks. Despite the name of their hobby, their real interest lies in the minerals of which rocks are composed. Born of the mighty forces of Nature, sometimes deep in the earth, sometimes at or near its surface, some ago or even in recent times, these minerals give a broad range of beauty and interest to what the average person thinks of as merely rocks.

A rock is really an aggregate of minerals. Ordinary granite, for example, is a hard, compact aggregate of feldspar, quartz, amphibole, and biotite. Other rocks may be essentially one mineral: sandstone, for example, is mostly quartz, limestone is mostly calcite (page 634).

Fossilized bones, shells, and wood also are collected by many rockhounds. Sometimes the original bone, shell, or wood gradually has been carried away bit by bit by underground water over vast stretches of time and

replaced, cell by cell, with some mineral dissolved in this same water. Such fossils are unchanged in form, but have been completely transformed into opal, quartz, pyrite, or other minerals (pages 642, 651).

Hundreds of Thousands of Devotees

In the last 15 years the number of mineral collectors has grown enormously. Today, in the United States alone, they number at least 200,000; some estimates run well over a million.

Here is a hobby that has everything. It offers healthful outdoor exercise, adventure, an introduction to a new world of beauty and color, a knowledge of geography and geology, and last but not least, a practical introduction to the science of mineralogy.

One may enjoy minerals as jewels of rare beauty, for diamond, ruby, sapphire, and other precious gems are minerals.† Then, too, fine natural crystals of some minerals even surpass in beauty gems whose surface has been modified by cutting and polishing.

Like stamp collectors, rockhounds learn geography through their collections. Every country in the world offers minerals of special interest, beauty, or rarity.

America's great "master collection" of minerals in the U. S. National Museum, Washington, D. C., administered by the Smithsonian Institution, was gathered almost entirely by two amateurs who devoted many years and large fortunes to their hobby (pages 640, 641).

Most other important mineral collections also were gathered largely by amateurs. No branch of science owes more to the work of amateur hobbyists than does that of mineralogy.

Starting Is Easy, Equipment Simple

Since there are only about 1,600 well-defined species of minerals, a diligent collector can learn to know all the common ones and many that are rare. Discovery of a new mineral is truly a feat of which to be proud. Finding a new species is an event of far greater importance, for example, than the discovery of a new insect, for the known species of insects described to date already number around three-quarters of a million.

* See "Earth's Most Primitive People," by Charles F. Munnell, *National Geographic Magazine*, January, 1932.

† See "Exploring the World of Gems," by W. F. Schuchman, *National Geographic Magazine*, January, 1932.



A "Rockhound" Winter-stationed at Pikes Peak, explores a crevice for Topaz Crystals.
Mr. Paul's discovery of topaz crystals at Pikes Peak, and the discovery of the same mineral at
other localities in the Colorado mountains.

Anyone can be a rockhound; he can start in his own backyard or the near-by countryside. Almost everywhere there are places to collect interesting minerals within the distance of a short walk or automobile ride, in a stone quarry, a mine, a highway or railroad cut, on a beach, a mountain, or at any place where there is an outcrop of rock. Some of the best mineral specimens collected in New York City, for example, came from subway and skyscraper excavations.

The equipment needed is simple—a prospecting hammer, a pocket knife, paper for wrapping specimens, and, if possible, a magnifying glass of about 10 power.

This hobby has no age limits. Many a collector, including the writer, started as a school-age "pebble pup." The Junior Rockhounds of Prescott, Arizona, is a club composed entirely of boys and girls of 7 to 15 years (page 658). Many elderly people find mineral collecting a fascinating hobby in retirement.

Clubs number more than 300, in almost every State of the Union, and hold regular meetings and field trips. Many are banded together in the American Federation of Mineralogical Societies. Conventions where collectors gather to "talk shop" and display their prize specimens are attended by thousands of persons.

Every devotee takes special pride in collecting his own specimens, but usually he also builds up his collection by swapping with fellow collectors or by purchase from dealers.

So enthusiastic a rockhound was Count Andor von Senesey of Hungary that his relatives tried to obtain a court order restraining him from spending so much of the family wealth on minerals! His collection is now in the Budapest Museum, and two minerals bear his first and last names, andorite and seneseyite.

Mother Earth Plays a Prank

Experiences on field trips range from the humorous to the adventurous and even dangerous.

Once I was collecting rare minerals deposited by fumaroles and hot springs at The Geysers, in Sonoma County, California, where the earth's surface seethes and bubbles with steam and boiling water which carry mineral matter to the surface from a mass of hot rock at great depth below.

As a result, much of the ground is saturated with a solution of sulfuric acid, strong enough to eat through clothing. Unfortunately I sat on the ground several times in places where I shouldn't have. A short time later I was dodging behind trees at the approach of every "sight-see"

Dr. W. F. Foshag, Curator of Geology at the U. S. National Museum, once was collecting minerals at an abandoned mine in Mexico where he had to climb several hundred feet down an old shaft by means of "chicken ladders," merely notched logs strung together by rope. When about halfway down the ladder, it occurred to him to ask his Mexican guide how old the ropes were. The answer was disconcerting, to say the least.

"I don't know," replied the guide in Spanish. "I have worked here only 25 years!"

Dr. Foshag had an even more exciting experience while collecting minerals deposited by hot gases escaping from the lavas of the newly born Parícutin Volcano in Mexico (page 636).*

The volcano was in frequent and violent eruption. While walking across a large open ash field, he was caught in a shower of volcanic bombs. These are more or less spherical chunks of lava which are thrown out of the crater by gas explosions to heights of several thousand feet. They fall with tremendous force.

One such bomb, about a foot in diameter and weighing 30 or 40 pounds, missed the scientist by only a few feet. It had a surface temperature of over 400° Fahrenheit and was red hot inside!

"Hair-raising" Experience

I once had a literally hair-raising experience while collecting aquamarine crystals near the summit of Antero Peak, 14,245 feet high, in the Colorado Rockies.

A particularly intense thunderstorm passed over the sharp ridge upon which I was working. I felt a peculiar prickly sensation on top of my head and, in passing my hand over it, found my hair was standing straight on end like a hairbrush because of the strong electrical field generated by the storm.

I hastily jumped to a steep snow field nearby and, using a shovel as a sort of sled, slid several hundred feet down in a matter of seconds.

Later a high-voltage expert told me: "It was fortunate that you got off the ridge as quickly as you did. The fact that your hair was standing on end meant that the next stroke of lightning very likely would have hit you!"

Stone quarries are fine places to collect specimens, but they should not be entered until one is sure that there is no blasting about to start. A friend of mine learned this the hard way.

Late one afternoon he visited a large trap-

* See "Parícutin, the Cornucopia That Grew a Volcano," by James A. Goff, NATIONAL GEOGRAPHIC MAGAZINE, February, 1952.



Collectors F emerge from an Arizonan Cave with "Ichneumon" of Caliente

When the time came to leave the cave, the men emerged into the bright sunlight. The man who had been sitting on the ground now stood up and looked at the specimen he had just found. The other man, who had been standing, now sat down and looked at the specimen he had just found. The man who had been sitting on the ground now stood up and looked at the specimen he had just found. The other man, who had been standing, now sat down and looked at the specimen he had just found.

rock quarry near Mexican frontiers in search of specimens. Starting for the day he was killed up a steep hill of rough rock across the quarry floor and up to the top of the hill. The man who had been sitting on the ground now stood up and looked at the specimen he had just found. The other man, who had been standing, now sat down and looked at the specimen he had just found.

The first blast came in as a long line of smoke and dust to start about 10 feet back from the edge of the low face over which he had scrambled only seconds before. Five successive blasts moved across the quarry floor, each about 10 feet closer to where he lay prone behind a large boulder. The last one went off only about 40 feet from him.

When he stood up and dusted himself off, he was sighted by an angry quarry foreman who told him in most forceful language that blasting is usually done rather more the way of a lunch hour or so at the end of the day after they have quit for the day. "Mind! No matter what time you go into a quarry, check with the foreman first." And out came the ever-present danger of falling rock.

Once the blasting was over, I went down again the hill to the low face over which I had just scrambled. Behind the boulder I had been lying I found a small, white, irregularly shaped object, which I took was a fossil. The man who had been sitting on the ground now stood up and looked at the specimen he had just found. The other man, who had been standing, now sat down and looked at the specimen he had just found.

"Skating" on Borax Lake

This small lake normally has water in it but that year, after a dry winter, it consisted of a soupy mud, many feet deep, covered by a thin crust of salts.

Since the mud crust would not support our weight, and the mud was so soft and sticky, we improvised skis by tying strips of six-inch planks to our shoes. With these we moved over the lake at will, collecting bits of mud and bringing them up from below our garden beds.

No lecture this time, for an even expert takes to large catapaults sponsored by mineral exhibitors. The next to last was a group of 20 rats and more than 1400 other who

assembled on the Mojave Desert near Hoover Dam to collect agates.

A good collector must have infinite patience. A fine crystal may have considerable value if taken out with care, attached to the matrix or surrounding rock. If carelessly broken or, however, and bruised or marred in the process, it may be almost worthless.

Hours or even days may be needed to work a specimen out of the enclosing rock. I know of one collector who labored for three weeks with hammer and chisel, "drifting" or following a vein of wulfenite in the wall of an abandoned mine tunnel for a distance of 30 feet.

He reasoned that if he followed the vein he might find a place where it opened into a cavity, because in such locations unusually fine crystals are most likely to have been formed. After three weeks of backbreaking labor, he did find a cavity and was rewarded by several magnificent specimens of brilliant orange-red crystals of wulfenite, or molybdate of lead (pages 643, 646, 647).

For the creation of her minerals Nature calls on all of the giant forces at her command, including the action of water, great pressure inside the earth, or the heat of volcanoes. Most minerals are formed by various combinations of these agents.

How Minerals Are Formed

Minerals come into being through three fundamental processes: formation from solution, just as sugar crystals often form on the bottom of a jar of maple syrup; formation by the cooling of a fused, or molten, mass, much in the way that molten metals are cooled and crystallize after being poured into a mold; and formation from gas by "sublimation," a process in which a gas passes directly to the solid state without going through an intermediate liquid condition.

One of the most important processes is formation from solution, with water as the chief solvent. Water dissolves substances in the earth's crust, rearranges them according to its fancy, and redeposits them as minerals. This water may fall originally as rain, or it may be "magmatic" water from the bowels of the earth which ascends to the surface as the steam of volcanoes or in hot springs.

Minerals formed by rain water are found within a few hundred feet of the surface. They form the calcite of stalactites and stalagmites in caves, the beautiful copper minerals, azurite and malachite, in the near-surface portions of copper mines, and the saline minerals such as halite (rock salt) found in arid regions like the Mojave Desert.

Magmatic waters are directly connected with large, deeply buried reservoirs of molten

rock, or magma, from which comes the lava of our volcanoes. These waters generally operate deep within the earth's crust, and their handiwork is revealed millions of years later where erosion has cut away the great thickness of overlying rock.

It is these waters that have deposited minerals containing gold, silver, copper, zinc, lead, tin, and other useful metals in veins and other types of ore deposits.

Minerals formed by fusion have crystallized directly from magma. They make up the igneous, or fire-born, rocks, such as granite and similar coarse-grained, deep-seated rocks, and lavas such as basalt, products of volcanic activity. Most important of the minerals formed in this way are the rock-forming silicates, including feldspar most abundant mineral in the earth's crust—amphibole, pyroxene, and mica.

Making Diamonds Is Nature's Secret

Formation of diamonds from carbon probably is linked to this process, but the exact details of a diamond's birth continue to be one of Nature's most closely guarded secrets. Numerous attempts have been made to "grow" diamonds in the laboratory. Trying to simulate conditions deep in the earth, Prof. P. W. Bridgman, Harvard's specialist on high pressures, subjected carbon to pressures as high as 400,000 pounds per square inch and to temperatures up to 3,000° Fahrenheit, but no diamonds resulted.

Minerals formed from vapor crystallize by passing directly from vapor to the solid state, but this process is rare. Sulfur crystals formed from hot gases issuing from fumaroles, or steam vents, in areas of recent volcanic activity are perhaps the most important example. There sulfur actually can be seen in the process of being formed.

An average sample of the earth's crust contains about 9 percent aluminum, 5.5 percent iron, but only .01 percent zinc, .008 percent copper, .004 percent tin, .002 percent lead, .0005 percent uranium, .0000006 percent gold or platinum, and most other metals in similar order of magnitude. In spite of our modern highly efficient methods of recovering metals from ores, it obviously would be impossible to work with ores such low grade.

The only reason that we have available for use such metals as copper, lead, zinc, silver, gold, uranium, and a great many others is that Nature has performed a remarkably good preliminary concentration by segregating abnormally large amounts of these scarce elements in certain spots in the earth's crust. These are our ore deposits.

How are ores formed? Geologists think

Altered the River's Course South of Mexico's Panama Volcano

It was a great
 thing that the
 great and powerful
 volcano had done
 at the time of the
 great earthquake
 which had shaken
 the whole of the
 country.

The great volcano
 had done a great
 thing for the
 country. It had
 changed the course
 of the river and
 had made it a
 great and powerful
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The great volcano
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 great and powerful
 river.

A Rock Collector's Camp Cut in the Rocks

It was a great
 thing that the
 great and powerful
 volcano had done
 at the time of the
 great earthquake
 which had shaken
 the whole of the
 country.



that as a mass of molten rock cools deep within the earth's crust, the common silicate minerals crystallize out first, leaving a liquid that becomes progressively richer in materials such as copper, lead, or gold. Finally the cooling rock liquid, containing heavy concentrations of these elements, fills cracks or crevices known as veins, which become our present-day deposits.

Indians Worshipped Copper Boulder

One of the largest and most noteworthy mineral specimens in any collection in the United States today is the famous Ontonagon copper boulder in the U. S. National Museum. It came from near Michigan's Keweenaw Peninsula, in the Lake Superior region, formerly one of the most important copper-producing areas in the world.

This specimen of nearly pure native copper weighs about three tons. Not only is it of interest for its size, but it could tell a fascinating story. It was worshiped by superstitious Indians for years, was the goal of mining adventures while the flag of England still flew over this Great Lakes region, and was sought by explorers and scientists on hazardous expeditions.

About the middle of the 17th century, Jesuit missionaries and French explorers around Lake Superior found among the Indians pieces of copper weighing 10 to 20 pounds. In 1667 a piece of copper weighing 100 pounds was brought to Father Claude Dablon, a Jesuit, and was reported to have come from the Ontonagon River.

In 1619 Gen. Lewis Cass's party visited the boulder. His men were able to move it only four or five feet, and another party two years later had no better success.

Meanwhile, Julius Eldred, a hardware merchant of Detroit, heard about the boulder. For 16 years he schemed and planned how he might remove it to civilization.

In 1841 Mr. Eldred led an expedition to the mouth of the Ontonagon River and bought the boulder from the Indians for \$150. The party then went 26 miles upstream to a point on the fork of the main river where the boulder was situated. They managed to raise it on skids, but could not move it, and had no better success the next summer.

Moved on Portable Railway

In 1843 Mr. Eldred went from Detroit with materials for a portable railway and car. Arriving at the boulder, he was chagrined to find it in the possession of a party of miners. He had to buy it again, this time for \$1,300!

It took a week for the party of 21 persons to get the boulder up the 50-foot hill near the river; then they moved it on the car and

wooden railway track for four and a half miles through dense forest and across deep ravines to the main stream, thence to Lake Superior.

Here Mr. Eldred was confronted by an order from the Secretary of War seizing the boulder and allowing him an amount not to exceed \$700 for his costs. He appealed to Congress and finally received \$5,664.98. The present-day value of the boulder for its copper content would be about \$1,500.

Eventually the boulder was carried to Washington, D. C., by way of Buffalo, the Erie Canal, and New York City. Sometime after 1855 it was taken to the National Museum.

Other copper masses of immense size were encountered from time to time in the Lake Superior mines. The largest, found in 1857, measured 43 by 22 by 8 feet and weighed about 420 tons.

Although of great value, these huge masses of nearly pure metallic copper posed unusual problems in mining, because the toughness of the metal made it difficult to break them down to a size that could be removed from the mines.

Large masses of other pure native metals have been found in various localities, such as a 190-pound gold nugget from Victoria, Australia (present-day value nearly \$80,000), a 200-pound mass of gold in a quartz vein from New South Wales, Australia, a 22-pound nugget of platinum from the Ural Mountains, worth about \$25,000 today, and huge masses of pure silver at Cobalt, Ontario, of which a 1,640-pound sample is preserved in the Parliament Building in Ottawa.

Minerals from Outer Space

Outer space also is a source of minerals. Constantly arriving on earth are the meteorites, the rock fragments of some shattered planet believed to have moved once in an orbit between Mars and Jupiter. When it broke up, this planet yielded the group of celestial bodies we now call the asteroids, as well as clouds of much smaller particles.

Astronomers estimate that hundreds of millions of these particles enter the earth's atmosphere every day, and that several millions are big enough to form visible "shooting stars," or meteors. Most of them, in just a few seconds, are heated to incandescence by friction with the air and consumed.

A few meteors are large enough to reach the earth without being burned up, and we call these meteorites. It is estimated that they fall at the rate of about one metric ton a day.

Meteorites long were believed to be supernatural, and when one was seen to fall, with the accompanying flashes of light and loud explosions, it created great fear. The earliest



Young Master Architects Join the Action in Inspecting a Famed Upper Boulder

The choice of large, ornate, carved stone vessels for the 1991-92 exhibition at the Virginia Museum of Fine Arts in Richmond was a conscious and deliberate decision. In the 19th century, when the first large-scale collection of Egyptian antiquities was assembled and housed in the Louvre Museum in Paris, the vessels were displayed in the Egyptian Gallery, which was designed to resemble an Egyptian temple. The National Museum in Washington, D.C., has long been a repository for Egyptian antiquities, and the 1991-92 exhibition was the first to be held in a permanent gallery.

As part of the study of early postures we selected preserved crania with well-developed, reduced, or absent canines. No crania with a reduced canine had a reduced or absent *Ornithomimus* depression. A single

For the purpose of determining the effect of the various stresses of Western civilization upon the native population, two American physicians, both of whom settled in the United States, have published a book, *Life in the Tropics*, in which they have collected a mass of facts and figures. A full discussion of the subject of tropical diseases will not be attempted.

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received the first award in 1912, one from
 the State of Ohio and the other from
 the National Association of Manufacturers.
 The award was presented to him by
 the State of Ohio in 1912 and the
 National Association of Manufacturers in 1913.
 The award was presented to him by the
 State of Ohio in 1912 and the National
 Association of Manufacturers in 1913.

The public health service has been able to obtain a number of projects and plans for the improvement of the health service. The service has been able to obtain a number of projects and plans for the improvement of the health service.

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are known, and not many of these were actually witnessed. Perhaps if rockhounds in the field would keep meteorites in mind while collecting other specimens, new finds would be made more frequently. Since there are relatively few known falls, the discovery of a new meteorite is a matter of considerable importance.

Most minerals in meteorites are the same as those found in terrestrial rocks, including nickel-iron, diamond, graphite, magnetite, quartz, olivine, pyroxene, and feldspar. But some rare minerals never found on earth are known only in meteorites, such as cohenite and schreibersite.

230 Possible Crystal Patterns

Nearly every mineral, when allowed to form without external interference, will assume the shape of a solid bounded by plane, or flat, surfaces. These solids are crystals. Well-formed crystals are minerals at their best and are highly prized by collectors. Most people find it hard to believe that crystals, with their mathematically exact, brilliant faces, are really the work of Nature and have not been cut and polished.

Crystals constitute the finest example of order in Nature. With very few exceptions, all minerals are crystalline—that is, their atoms are precisely arranged in orderly rows and layers, in a pattern which is repeated over and over again in three dimensions, much as the pattern of wallpaper is repeated in two dimensions.

This orderly atomic arrangement is the fundamental characteristic of crystalline materials, as opposed to the haphazard arrangement of atoms in noncrystalline substances, such as glass. Natural crystal faces are the outward expression of orderly atomic arrangement within, since all the faces must be parallel to a plane of atoms.

There are only 230 different fundamental patterns into which atoms can be arranged, so as to yield a design which can be repeated indefinitely in three dimensions. These are the 230 space groups, which can be further divided into the six great crystal systems, known as isometric, tetragonal, hexagonal, orthorhombic, monoclinic, and triclinic.

These six crystal systems are characterized by the nature of the simplest set of imaginary lines, called axes of reference, that can be passed through them, and to which the individual crystal faces can be referred.

Crystals grow from the center outward because atoms are attracted by electrical forces to other atoms of the same type already on the surface of the crystal. The additional atoms arrange themselves in orderly layers, layer on layer, on the original seed, or nucleus.

Crystals may be so tiny as to be invisible even under a high-powered microscope, or they may be many feet in length. Among the largest known were the huge spodumene crystals found in the Etla Mine, in the Black Hills of South Dakota, which reached a length of about 40 feet.

Crystals assume many different shapes, depending on the number and relative size of the faces. The least number of faces possible, is, of course, four, and a four-sided crystal is known as a tetrahedron. At the other extreme, a rare mercury mineral, egglestonite, from Texas produced a crystal having 482 individual and distinct faces, all on a crystal less than 1/25th of an inch in size.

In the vast majority of cases a mineral cannot assume perfect crystal form because other crystals near by block its growth in some directions, as, for example, the crystals of the various minerals in granite.

Roebling Collected 16,000 Specimens

Of all the great collectors of minerals during the past century, perhaps the most interesting was Col. Washington A. Roebling. He gathered more than 16,000 specimens which were given to the U. S. National Museum in 1927 by his son, John A. Roebling, in memory of his father.

Colonel Roebling collected minerals even while serving in the Civil War. Among his specimens is a small piece of gold, with a neatly folded label written in his characteristic fine and perfect script: "A minute spec. of native gold from the U. S. Gold Mine on the Rappahannock, in which I slept the night before the Battle of the Wilderness."

As a military engineer, he built suspension bridges across the Rappahannock and across the Shenandoah River at Harpers Ferry. After the war, joining his father's firm, he completed the construction of the Brooklyn Bridge, a marvel of its day and the first of such great suspension bridges built in the United States.

While directing work on the bridge he contracted the dreaded caisson disease, or bends, as a result of coming to the surface too quickly after working in the compressed air used to keep water from entering the caissons.

Though this made him an invalid, he devoted himself to mineral collecting for the next 20 years. His love of his hobby undoubtedly prolonged his life. Near the end, when his sight was failing, he remarked, "My life is over, as I can no longer see my minerals."

Colonel Roebling knew his vast collection so thoroughly that he could describe instantly the specimens representing any species. His

collection contained all but 12 of the names in the index of the sixth edition of Edward Salisbury Dana's *System of Mineralogy*—an unparalleled feat.

Smithsonian Collection World's Best

As a result of these efforts put forth by a man who collected minerals as a hobby, the U. S. National Museum now has the most extensive mineral collection in the world, of inestimable value for research.

When Colonel Rockbings' collection was deeded to the National Museum its value was conservatively estimated at \$250,000. With income from a generous endowment fund that went with the collection, new specimens constantly are being purchased, so that the present value of the collection is far higher.

Another of the great rockhounds was Frederick A. Canfield of Dover, New Jersey, who in 1926 gave the Museum a collection of some 7,000 fine mineral specimens. Included in it is one of the earliest mineral collections ever made in America, begun in 1808 by Mahlon Dickerson. The most exceptional specimens in the collection are those gathered by Mr. Canfield's father from the long-famous zinc mine at Franklin, New Jersey.

This locality is a byword among mineral collectors, since in addition to producing spectacular crystal groups of many minerals, it has yielded also nearly 150 different mineral species, many of which are brilliantly fluorescent. After more than 100 years of continuous operation, this mine is nearly exhausted and is to be shut down in about two years.

Funds left by Mr. Canfield are used to add constantly to his collection.

Mineral collections such as these probably will never again be equaled, since they contain the finest specimens from localities long since depleted. These collectors also had considerable wealth for the purchase of specimens, and were able to devote a lifetime to the hobby.

Most rockhounds specialize in a single phase of mineral collecting, if only because a collection quickly becomes both bulky and heavy.

Some, interested in geography, try to obtain a specimen of a common mineral, such as quartz, from every State in the Union, or perhaps eventually from every country in the world.

Precious Atoms Glow Like Coals

One of the popular specialties is collecting fluorescent minerals (pages 656, 657). Such minerals glow in the dark when viewed under invisible ultraviolet, or "black," light, revealing beauty and color that remain hidden in ordinary daylight.

Fluorescence may be explained roughly by

saying that the mineral, which is made up of atoms, is in a condition of strain because of the presence of foreign atoms that are too large or too small to fit properly into their surroundings. When excited by the energy of the "black" light, this strained network of atoms vibrates and gives off visible light, causing the specimens to glow like hot coals.

Many minerals which are ordinarily dull and drab looking are transformed by fluorescence into dazzling splashes of color of nearly every hue. A good exhibit of fluorescent minerals can be truly a breathtaking sight.

One method of identifying minerals in rocks is to pass polarized light through very thin sections with the aid of polarizing prisms in a special microscope. Unlike ordinary light, which vibrates in all directions, polarized light vibrates in one direction only. Such light brings out characteristic colors and structures used in identification (page 652).

"Micromounts" Unequaled for Beauty

Many rockhounds collect "micromounts," thumbnail size specimens whose minute patterns and colors are visible only under a microscope (pages 652, 653). Each specimen is mounted in its own tiny cardboard box. A collection of thousands of such specimens can be stored in a cabinet no larger than a console table.

Micromount collectors prefer crystallized material, and crystals are generally more perfectly formed when small. A good micromount, properly mounted and lighted, has no equal for beauty and perfection of form. For viewing micromounts, one needs a good wide-field binocular microscope having a magnification range of from about 10 to 60 or more power.

Some rockhounds are interested primarily in minerals of economic importance, or in the chemical, optical, or physical properties of minerals. Others specialize in collecting fossils, though, strictly speaking, these are not minerals.

Fossil collecting is especially popular in many of the Midwest States, where fossils are abundant in limestone and sandstone deposits laid down on the bottoms of ancient seas. Rocks in which minerals are found in great variety are scarce in this section.

One of the most popular specialties for rockhounds is the cutting and polishing of gems, or lapidary work. The amateur lapidary collects only minerals that will take a high polish and have sufficient beauty to be used as ornaments. From these he fashions gems of all kinds, often with a skill equal to that of the best professionals.

The rise of the lapidary movement in the past few years has been phenomenal. Less

than 20 years ago only a few firms manufactured lapidary equipment, mostly for professionals. Today there are dozens of firms manufacturing it for home use, and thousands of amateur lapidaries.

Lapidary work is also being used very extensively by the armed forces as part of their restorative physical therapy, and rehabilitation program for servicemen and veterans.

Some lapidaries cut mostly smooth, domed-top stones known as cabochons (page 650). Others prefer to make faceted stones, those cut with a large number of flat faces (page 655), such as the familiar brilliant-cut diamond. Still others may specialize in large, flat, highly polished slabs for making book ends, ash trays, or penholders.

Agate Popular with Lapidaries

Agate is one of the most popular materials of the amateur lapidary. A hard, tough variety of quartz, it takes a high polish and shows an almost infinite variety of colors and patterns. Unusually fine agates are found in many areas in the West and Southwest, especially California, Montana, New Mexico, Oregon, Texas, and Washington.

Individual agate collections may contain thousands of specimens, including forms such as moss, plum, iris, landscape, and others, all named for their resemblance to these things.

Many agates come from "thunder eggs," more or less spherical nodules of agate found in cavities formed in broken volcanic rock by steam and other hot gases. The agate was carried into these cavities by underground water over a long period of years. Thunder eggs were so named by American Indians, who thought they were hurled down from the craters of Mount Hood or Mount Jefferson in Oregon when the spirits of the mountains were angry.

Petrified or opalized wood, petrified dinosaur bones, jade, marble, travertine, and, of course, all the well-known gem minerals—these are popular materials for cutting and polishing.

Amateur Lapidaries also cut spheres and beads (page 650), make miniatures or carve cameos, or combine these with metalwork to make their own jewelry. One craftsman in Baltimore, Maryland, has created his own silver dinner service, each piece with a beautifully cut and polished agate handle.

Naming of minerals usually is left to the discretion of the namer. Most names end in -ite, although many of the ancient names, such as galena and cinnabar, do not follow this rule.

Many minerals that have been known since ancient times were named from the Greek,

usually in allusion to some outstanding property. Hematite, oxide of iron, was named by Theophrastus about 325 B. C., from the Greek *haima*, blood, from the color of its powder. Scorodite, arsenate of iron, received its name from the Greek *skoradon*, pale, because it emits a disagreeable garlicklike odor when heated.

Stinkflus was a name applied in the middle 1800's by German miners to a peculiar variety of fluorite from Welsendorf, Bavaria. When struck with a hammer, this mineral produces a highly unpleasant odor, reported to have caused headaches and nausea among miners.

Other names come from the locality in which a new species is first discovered. Among them are columbite from the State of Colorado; benitoite for San Benito County, California; franklinite for Franklin, New Jersey; labradorite for Labrador; brazilianite for Brazil, and many others.

Minerals Named for Famous People

Other minerals have been named after famous people. Willemite, a zinc silicate, was named in 1840 in honor of Willem I, King of the Netherlands. Goethite, a hydrous oxide of iron, was named in 1806 for Goethe, the great German poet-philosopher. Smithsonite, zinc carbonate, honors James Smithson, founder of the Smithsonian Institution. In 1946 a new mineral from Bolivia was named roosevelkite, for Franklin D. Roosevelt. Alwillite is a contraction of the name of Alpheus B. Williams, a noted authority on diamonds.

There is an amusing story of the way in which the mineral giesseckite was named in 1813.

During the Napoleonic Wars a Danish ship was captured by the British Navy en route from Greenland to Copenhagen. In her cargo were several boxes and barrels of minerals. These were purchased at auction by a Scottish mineralogist, Thomas Allan, who knew only that the collection came from Greenland. He found among the specimens two species not known before. One he named sodalite; the other was named allanite in his honor by Dr. Thomas Thomson.

Later, in 1813, Allan learned that the collection had been made by a mineralogist named Giessecke, who had spent seven and a half years in Greenland, having been delayed by the war. Learning of the capture of his first mineral collection, Giessecke laboriously retraced his steps to replace it.

When Giessecke finally returned home, he found that his Greenland minerals, including two new species, had already been described by Allan, no doubt most discouraging news

after his many years of work. As a part of a collection drive, Alton mined a rather small, dark, rock crystal looking alteration product of nepheline, pieced in.

Mercury from Ancient Mine

Of the 90-odd known chemical elements, only about 20 exist in the native form. These are gold, silver, copper, platinum, sulfur, diamond and graphite. Mercury, sometimes found as a pure metal in Nature, is a liquid mineral.

Gold, sulfur, and diamond have the greatest commercial importance in the world. Practically all production of these important materials comes from the sites where they are found as the pure native element.

Greatest gold-producing area of the world is in Witwatersrand in South Africa. The Belgian Congo was the source of two thirds of the world's diamonds produced in the world in 1950. Our sulfur is found largely in the salt domes of Louisiana and Texas.

Most of our metals come from the sulfide group of minerals, such as copper, lead, or zinc. Chalcocite, a lead-gray sulfide of copper, and bornite, a reddish-brown sulfide of copper and iron, are the sources of the copper mined in the district around Butte, Montana, sometimes called "the richest copper mine on earth."

Magnetite Guided Early Mariners

One of the most abundant metallic minerals was found by Romans at Almaden, Spain, in 1492, before Christ, and this same mine still is one of the world's greatest producers of this metal. The Spanish word for "school of iron," has earned it the name of "fool's gold"



Deep in a Lead-zinc Mine a Rockhound Finds Wulfenite. The mineral is a rare, bright yellow, and is a source of lead and zinc. It is found in the mine at Lead, South Dakota.

(page 655). The Romans used it to make spears and swords, and it was used in making sulfuric acid.

Practically all our iron comes from members of the oxide class of minerals—hematite, magnetite, and limonite. Hematite, the most abundant, is found in enormous quantities in the great iron-mining district such as the Mesabi Range in northern Minnesota. Magnetite sometimes in nature is a natural magnet, called lodestone, from which early mariners made their first crude compasses.

Chromite gives us chromium, a silvery metal, and is produced from chromite. Cassiterite, the principal tin mineral, is one of the few found nowhere in the United States in large quantities. It is found in small quantities in the United States, but is placed high on the "strategic list" in times of

war. Deposits on the Malay Peninsula are the world's richest.*

Quartz, oxide of silicon, is the second most abundant mineral in the earth's crust, in rocks such as granite, gneiss, sandstone, quartzite, and beach sands. In addition, quartz has important uses in the manufacture of glass, sandpaper, oscillators for the control of frequency of radio transmitters, and many others.

Chalcedony, a fine-grained variety of quartz, in its almost limitless ramifications of color and form, provides the rockhound, and especially the amateur lapidary, with a wide variety of materials, such as agate, jasper, bloodstone, carnelian, onyx, and petrified wood.

Perhaps the most important of all the oxides now is uraninite, oxide of uranium. This heavy black mineral and the bright-yellow and orange uranium minerals associated with it are the world's chief source of the essential ingredient both for the atom bomb and for peaceful uses of atomic energy. The three greatest uranium mines are in the Belgian Congo, Canada, and Czechoslovakia.

Carnotite, containing potassium, vanadium, and uranium, is one of the important sources of uranium in this country. It is mined extensively in deposits widely scattered throughout the Colorado and Utah plateau country.

Even Ice Is a Mineral

Ice too is a mineral, an oxide of hydrogen, which, in addition to its well-known forms as ice, snow, and frost, is an important rock-forming mineral in glaciers and in the icecaps of Greenland and Antarctica.

Our common table salt, chloride of sodium, is halite, one of the halide class, compounds of metals with fluorine, chlorine, bromine, or iodine. The oceans contain some 4,800,000 cubic miles of common salt. Another of the halides, cerargyrite, or silver chloride, was named "horn silver" by early miners in allusion to its brown, waxy appearance and the fact that it could be cut with a knife.

Calcite, or calcium carbonate, is the chief constituent of limestone and marble, and portland cement and lime are manufactured from it.

Kernite, sodium borate, is the most important commercial source of borax. This

mineral is unique among ores because the processing of it yields nearly one-third more borax simply by adding water. Kernite is mined at Kramer, in the Mojave Desert, California, the world's largest single source of this commodity.

Nitrate deposits are extremely valuable as sources of fertilizers and explosives. The largest are in Chile's renowned Atacama Desert, an area so arid that often no rain falls for several years.

Most important of the phosphates is colophonite, chief constituent of phosphate rock, a brown to gray earthy-looking material which is our chief source of the phosphorus used in fertilizer. In the United States it is formed in Tennessee, Wyoming, Idaho, and along the Atlantic coast from North Carolina to Florida.

Gypsum Windows for Beehives

Most common of the sulfates is gypsum, a calcium sulfate containing water. When powdered and gently heated it is anhydrous and becomes plaster of paris. The Romans placed windows made of clear cleavage flakes of gypsum in their beehives so that the bees could be seen at work.

Silicates are metals in combination with atoms of silicon and oxygen, some with and some without water. The most important of the silicates are feldspar, pyroxene, amphibole, and biotite, for these minerals, plus quartz, compose more than 90 percent of the earth's crust to a depth of 10 miles.

The micas are characterized by their flaky, or micaceous, structure. Muscovite, one of the micas, in addition to being a common constituent of many types of rock, sometimes forms in large crystals and is split into thin sheets from which a large variety of articles are cut for use as electrical insulators. At one time it was commonly used in stove fronts and known as *isinglass*.

There is space here to mention only a few of the more interesting of the 1,000 different species of minerals. Uncovering their beauty, any rockhound is sure to find opening before him a new world of interest and fascination.

* See in the NATIONAL GEOGRAPHIC MAGAZINE, "Bohemia—Tin Roof of the Andes," by Henry Albert Phillips, March, 1943; "Metal Snows of Strength," by Frederick G. Youngburg, April, 1942, and "Tin, the Underella Metal," by A. von Oetard and Overbeck, November, 1941.

Write for more information to the NATIONAL GEOGRAPHIC MAGAZINE, 1201 15th St., N.W., Washington 5, D.C. For the first of the month of February, the Society should be notified of your new address not later than December 1. Be sure to include your postal-zone number.



Digging for Hidden Beauty: A Copper Mine Yields Blue-green Chrysocolla

A small-scale copper mine in the southwestern United States has been found to produce a rare blue-green chrysocolla. The mine, located in the state of Arizona, has been producing copper for several years. The chrysocolla is a rare mineral that is found in the mine's waste rock. The mine's owner, who is a local resident, has been working to develop the mine's potential for producing chrysocolla. The mine's output is currently small, but the owner hopes to increase production in the future.

COLOR IN THE MINERAL KINGDOM



Minerals, Separated from Drab Earth, Shine in a Gallery of Rainbow Hues

Just as the rainbow separates the colors of the spectrum, so the Mineral Kingdom separates the colors of the earth. At the Mineral Kingdom, the colors of the earth are separated from the drab earth and are displayed in a gallery of rainbow hues. The minerals are arranged in a grid-like fashion, with each specimen labeled with a small white tag. The colors of the minerals include yellow, green, blue, purple, orange, and red.





• Bright Rocks Become Delectable Collections

The third in a series of books, "Bright Rocks," is a collection of colorful, patterned papers, which are used to create a variety of rock-like shapes. The book is a guide to creating these "bright rocks" and is a great resource for anyone interested in creating colorful, patterned collections.

• Rock Colors Reveal Intricate Patterns

With a focus on the colors of the rocks, this book is a guide to creating colorful, patterned collections. The book is a great resource for anyone interested in creating colorful, patterned collections. The book is a guide to creating these "bright rocks" and is a great resource for anyone interested in creating colorful, patterned collections.

For more information, visit
www.brightrockscollections.com



Opal Jewelry with Lustrous Lights and Lively Pearl Lures to Ancient Fossils

Opal jewelry is a beautiful and unique way to showcase the natural beauty of opal. The stones are set in a variety of designs, including pendants, earrings, and rings. The opal's natural colors and patterns are highlighted by the jewelry's design. The jewelry is made from high-quality materials, ensuring durability and longevity. The opal's natural beauty is preserved, making it a valuable and timeless piece of jewelry.

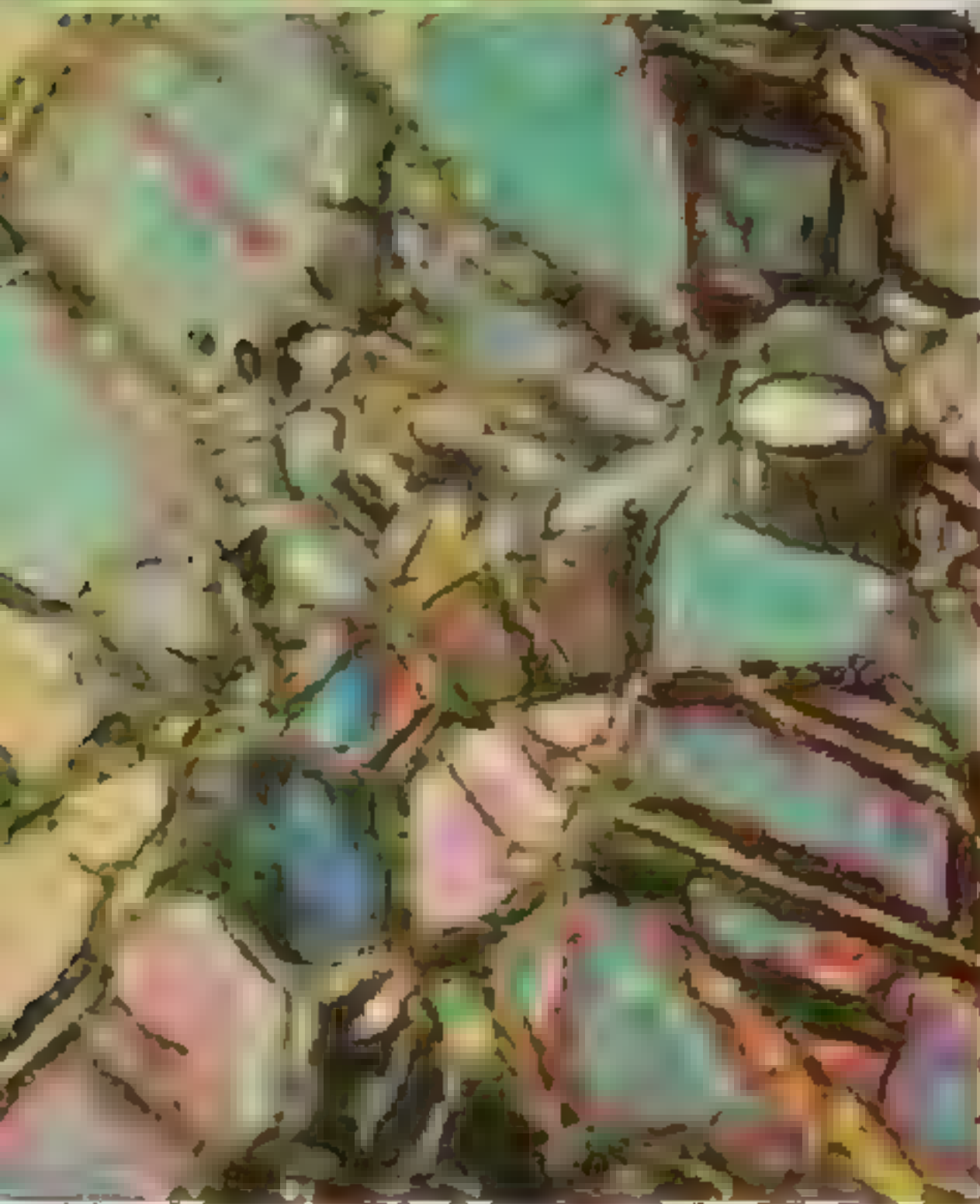


Figure 1: Minerals Through the Microscope: Olivine (Left) and Hornblende Reveal Complex Patterns
 Rock sample 1, collected from the same area as sample 2, shows how different mineral grains appear under a microscope. Olivine (left) and hornblende (right) reveal complex patterns. Polished thin films through a polarizing microscope.



* **Rockheads Find Good For Iron,
Not For Profit**

Although the iron ore is not as rich as the iron ore found in the Iron Range of Minnesota, the iron ore found in the Iron Range of Minnesota is not as rich as the iron ore found in the Iron Range of Minnesota.

* **Pyrite, Almost Worthless, Rivals
Gold in Glitter**

The pyrite is not as rich as the gold, but it is as glittery as the gold. The pyrite is not as rich as the gold, but it is as glittery as the gold.



Only a Limited Number Recalls the History of "Lumbermen"
A Bookman's "Lumbermen" Up to "Lumbermen"

A Healthy Future for America's Children

The following table shows the results of the analysis of variance for the effect of the concentration of the solution on the rate of reaction. The results are given in terms of the rate constant, k , and the order of reaction, n . The values of k and n are given for each concentration of the solution. The values of k and n are given for each concentration of the solution.

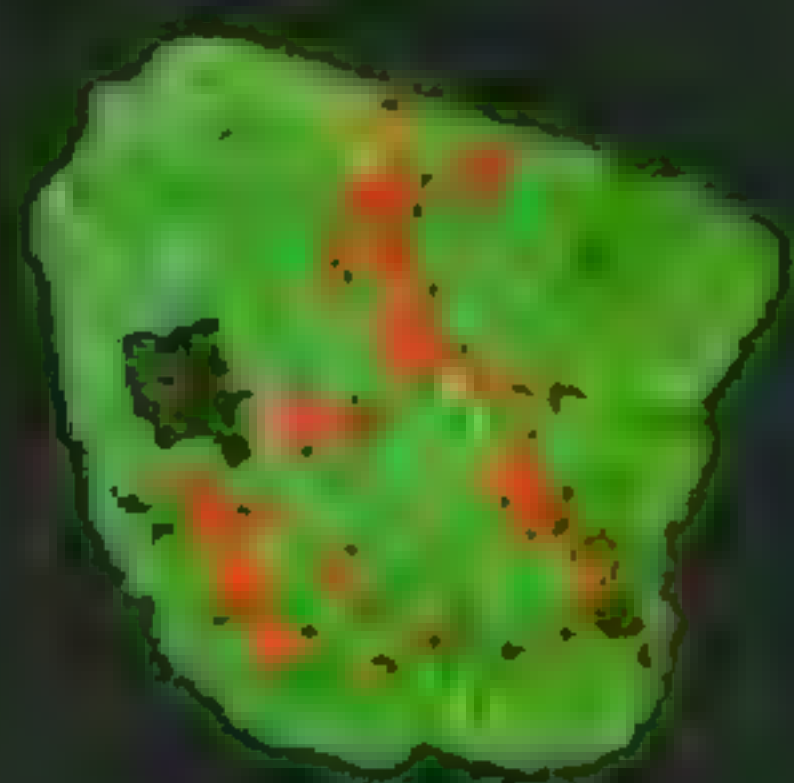
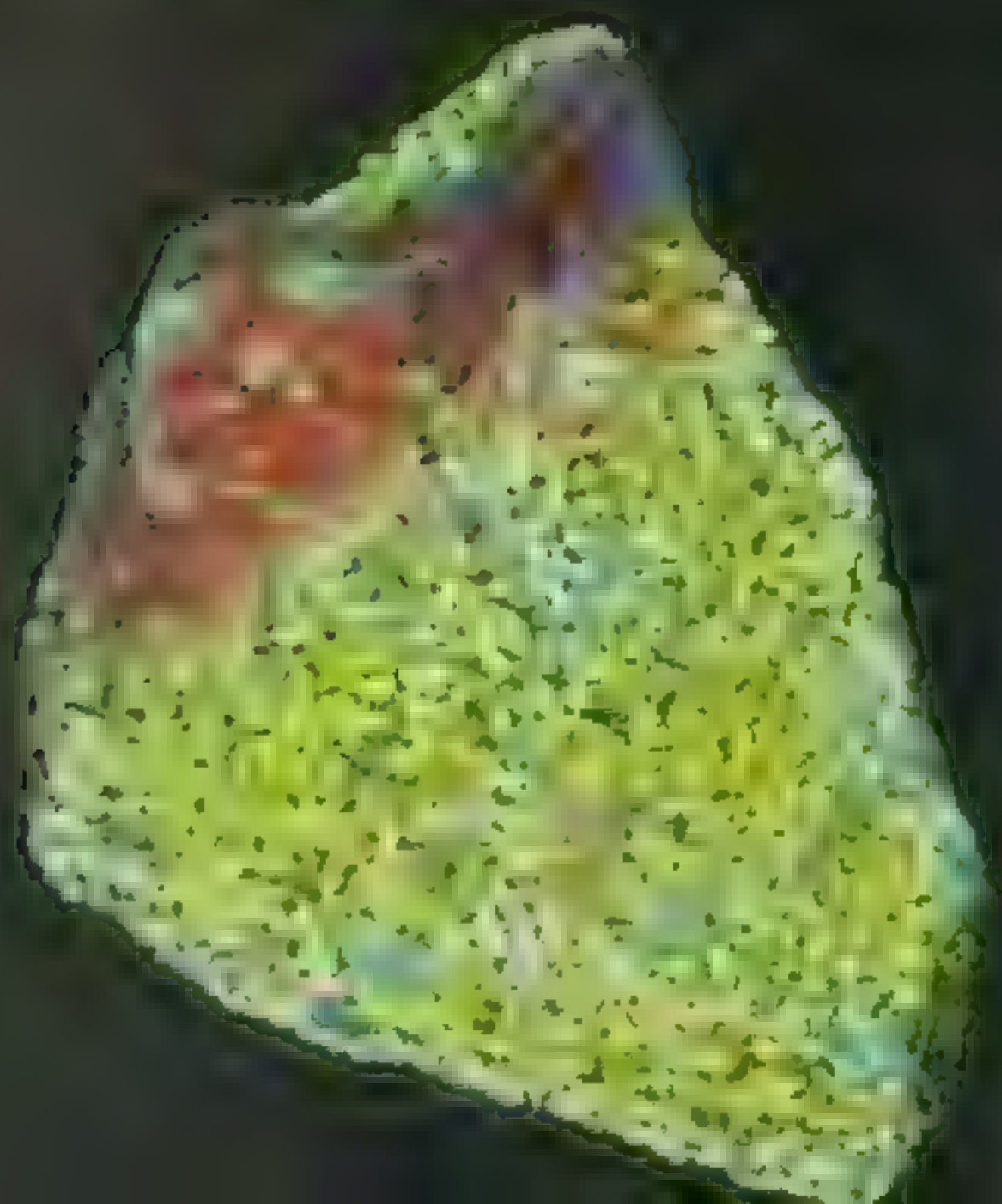


Diventa Lively to Release Rocks' Flashing Spectral Lines

These rocks, which were found in the
Fossiliferous New Jersey and New York
rocks, have been found to be of the same
composition as the rocks of the same
age. They are of the same composition
and are of the same age.

Dark Stones Change to Brilliant Jewels in Ultraviolet Light

When these rocks are placed in the
ultraviolet light, they change to brilliant
jewels. The rocks are of the same
composition as the rocks of the same
age. They are of the same composition
and are of the same age.





* Rainbow Colors Hide Within These Puzzled Colicross Pieces

These stones are pieces of a rock called Colicross. It is a very hard rock, and it is found in the mountains of the Colorado Rockies. The stones are found in the mountains of the Colorado Rockies, and they are found in the mountains of the Colorado Rockies.

* Fluorescence Works Its Magic; Rocks Glow Like Neon Lights

When these rocks are placed in a dark room, they glow like neon lights. This is because of the way the rocks are made. The rocks are made of a material that glows when it is exposed to light. The rocks are made of a material that glows when it is exposed to light.



1. The first step in the process of creating a new product is to identify a market need. This involves conducting market research to understand the preferences and behaviors of potential customers.

2. Once a market need is identified, the next step is to develop a concept. This involves brainstorming ideas and creating a prototype that demonstrates the basic functionality of the product.

3. The third step is to conduct a feasibility study. This involves evaluating the technical, financial, and operational aspects of the product to determine if it is viable for production.

4. If the feasibility study is successful, the next step is to develop a business plan. This involves outlining the marketing, sales, and distribution strategies for the product.

5. The final step is to launch the product. This involves manufacturing the product, distributing it to retailers, and promoting it to the target market.



New Guinea's Paradise of Birds

By E. THOMAS GILLIARD

Assistant Curator of Birds, American Museum of Natural History

ON a zoological expedition to New Guinea, we were told, we should be sure to take along a good supply of water bulbs.

In the mountainous interior of this, the world's second largest island, a soccer ball would buy more food and hire more labor than all the financial resources of the American Museum of Natural History. Among the natives who live there, many of whom have never yet seen a white man, the coveted American dollar is worthless.

Other useful currency, we were advised, would be red powder paint, glass beads, stick tobacco, newspapers (any age), and shells, especially gold-lip oyster shells.

With these we would be able to buy from the natives not only hours and weeks of muscle power but skilled help in finding the birds, insects, plants, and mammals we were seeking. To earn half a thimbleful of red beads, a native naturalist would search hours in the jungle for a rare bird specimen. To win a couple of gold-lip shells he would carry a heavy pack for two-and-a-half months.

Our adviser, one of the few men in the world competent to supply the information we needed, was an Australian explorer named Ned Blood. He had spent a number of years collecting birds in the New Guinea heartland for the Taronga Zoological Park in Sydney. Besides hints on equipment, he told us that the best months for traveling in the mountains would be the cool, dry season from April through mid-August.

Airlift to the Stone Age

At 8 in the morning on April 17, 1950, Ned and I took off from Lae in a little twin-motor De Havilland for the mountains of New Guinea. Our engines drained under a payload of 1,200 pounds of paraphernalia, including guns and 5,000 rounds of ammunition, still and moving picture cameras, 15 gallons of embalming fluid, and 10 pounds of arsenic.

This was the beginning of a trip which was to take me, with two companions who joined me later, into unexplored forests of the high heart of the island. Before it was finished, we would spend 103 days in the field collecting more than 3,500 specimens of birds, mammals, plants, and butterflies.

Our special objects were certain rare mountain birds, particularly the male of the ribbon-tailed bird of paradise, *Astrapia mayeri* (page 677). This bird, with a brilliant green body and a slender white tail more than three feet

long, is one of the most spectacular in the world. Until 1948 no live males had ever been seen outside central New Guinea, and specimens are still extremely rare.

We flew that morning high over the great braided Markham River, heading generally northwest and inland toward the valley of the Wahgi River. This valley, about 75 miles long, has been farmed for many hundreds of years by the more than 75,000 Stone Age aborigines who live there. Only a comparatively few years ago their very existence was unknown to the outside world.

New Guinea, 1,500 miles long and 400 miles wide, sits in the shape of a gawky vulture astride Australia's back, its ugly beak facing west and opened as if to devour the Celebes, Borneo, and Singapore. Its western, or head, half is governed by the Netherlands, its tail half by Australia. Running west to east, from beak to tail, is a spine of formidable mountain ranges. Despite work by a host of naturalists, scarcely more than the head, neck, and shoulders in the west and the ungainly tail in the southeast had been explored.

The Girl Who Lived in Shangri La

Many Americans became familiar with the shape of New Guinea during World War II, when the Japanese attacked it. I saw parts of it when serving with the U. S. Army. Later, in 1945, an American C-47 transport plane crashed in the central mountains. One of three survivors was a pretty WAC corporal, Margaret Hastings. Her story of weeks in a lofty "Shangri La" peopled with tall, pig-raising tribesmen was spread around the world by radio, newspapers, and magazines.

Actually, New Guinea's tribesmen of this area had been "discovered" more than a decade earlier by Michael Leachy, explorer-prospector extraordinary, who in his search for gold roamed hundreds of miles through the mountainous interior and found the great Wahgi Valley. Later, in 1938-39, the Richard Archbold Snow Mountains expedition studied the interior around Mount Wilhelmina, farther west, for bird and mammal life.* Now, with luck, I was to push the exploration of this naturalist's mecca a step nearer completion.

In our plane that morning we followed in an hour and 10 minutes the 250 tortuous trail miles Leachy traversed in making his initial discovery. The Wahgi rises on the eastern slopes of Mount Hagen, the wide-based

* See "Unknown New Guinea" by Richard Archbold, NATIONAL GEOGRAPHIC MAGAZINE, March 1941.



New Guinea's Mountains and Valleys Are Still Largely Unexplored

During his latest expedition the author found more than 20 unknown birds, climbed a 15,400-foot peak never before scaled, and visited pockets of aboriginal cultures no white man had ever seen before. Mr. Lloyd reached the Kubera, Mount Hagen, and Mount Wilhelm. Upper portion of map shows his exploration area.

the rain. Around it were thatched native houses and flocks of healthy sheep, carried in by plane from Australia (page 673).

This was Nondugl, established in 1947 by Ned Blood with the backing of E. J. L. Hallstrom, Australian manufacturer, naturalist, and philanthropist.* Through shipments of livestock and plant seeds to the Wabgi, native agriculture and diet are improved; from Nondugl, in return, many rare animals and birds have been sent to the Taronga Zoo.

At Nondugl, under Blood's direction, has been gathered the greatest collection of birds of paradise ever seen by man. Many have been conditioned to cage life, then transported by air and coastal steamer to Sydney. Though commercial shipment of birds of paradise has been banned by law since the 1920's, the Government still permits a limited number to be taken out for scientific study.

* See "Blood's Apit in New Guinea," 16-18, NATURE, THE NEW YORK MAGAZINE, December, 1949.



Shellbrowned Hunters Display the Morning's Catch of Chimpanzees

These hunters have killed a pair of adult Kiburi chimpanzees, and a pair of young ones. The boys are from the village of Numbuk.

In the next two weeks I am to go to Numbuk. Its people will be good assistants, and I hope I shall be able to make the technique of making a number of small catches in minutes easier for them. We learned to catch chimpanzees in a bamboo and otherwise, in a long way.

When this was finished, we were ready to jump out into the jungle. During the next few months, after day, I was to work with my men on a carrier line over country for miles of the jungle.

The first morning's march was 10 miles, mostly through the jungle. We were to go only half that distance. We had to go to the edge of the jungle, and then to the edge of the jungle. If we had a good map for each day, we could go for a day or a week or longer. But days were never more than 10 miles. The first day was 10 miles, and the second day was 10 miles.

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Wading. A man can go only a few miles a day, and he must be able to walk, crawl, or cling like a monkey. Even pigs must be carried in a basket.

Jungle Train—One Mile Long

Organization of the jungle train is one of the most important parts of the work. The men are to be in a way that they can go with the train, and they can go with the train.

First all equipment, including trade goods, weapons, and other necessities, are packed. Then the men are to be in a way that they can go with the train, and they can go with the train. The men are to be in a way that they can go with the train, and they can go with the train.

Men are to be in a way that they can go with the train, and they can go with the train. The men are to be in a way that they can go with the train, and they can go with the train.



L T , I , I ,

The Author Politely Admires Her Lab Assistant's Hanging Skull Nosepiece

7. "The purpose of several letters to Mr. Callard to help prepare scientific questions. *Hispania*, 1931, New Year, and one on 20 April 1931. The last of these was in the last

work are either left out or reported as being ranging from a range of response, such as "none" or "less than 100%," and are not included.

Fortunately, most of the time we have the specimens in the original collection. Up to now, although the collection is small, it has a good historical basis in a sense, such as with the *Chrysomitris*, since the majority of the species have not been collected. This is essential if the collection is to be considered as a type and studied. It is partly on the basis of these studies that we make a formal list of members, the *series*, as we

[illegible]

One of our girls was a single mother and had lost the machine at 22 months. Her mother said she always told her to keep within business track, "I said large forest spaces

each of the four *H. trochanter* and *M. trochanter* and were the 10-gallon barrels sealed under vacuum and in duplicate nitrogen-filled drums.

Most of the shooting in the war was done by the soldiers, even though by some means a volunteer corps joined from time to time in the Museum workshop. With time, the factory, though altered for the war, still in fact made all the equipment, mainly bullet shells and cartridges. These bullets ended with the shell that had been used the first time the first single shot was produced, and then it changed to that soldier's portrait.

Cameras Are Always Included

Next, all of the girls in the center line come
to a standstill. Under the girls' hands are
the second column of numbers. The girls only
move the 100's column, not the 10's or
1's. They are not allowed to move the 10's or 1's
columns like a rule. The teacher
has to be prepared to stop and correct any
mistakes.

There have been several deaths among wild birds since the outbreak. The last of these, who have been treated as suspected, occurred. I found them some dozen or so

The above conditions
are all met by the
following:

(The following information was obtained from the company's website.)

The first of these is the fact that the
 Journal of the American Medical Association
 has been the only one of the four
 leading medical journals to publish
 a special issue on the topic of
 "The Role of the Physician in
 the Health Care System." This
 issue, which appeared in the
 November 1980 issue of the
 journal, was edited by Dr.
 William H. Stewart, then
 President of the American
 Medical Association. It
 contained a number of
 articles, including one by
 Dr. Stewart himself, which
 discussed the role of the
 physician in the health
 care system. The
 *Journal of the American
 Medical Association*
 has since published
 several other special
 issues on the topic
 of "The Role of the
 Physician in the
 Health Care System,"
 including one in
 1982, one in 1984,
 and one in 1986.
 The *Journal of the
 American Medical
 Association* has
 also published
 several other
 articles on the
 topic of "The
 Role of the
 Physician in the
 Health Care
 System," including
 one in 1980,
 one in 1981,
 one in 1983,
 one in 1985,
 and one in 1987.

1. The first step is to identify the key components of the system. This involves understanding the hardware and software involved, as well as the data flow and the roles of the various components.

Builders Throw Up Jungle Quarters in Half a Day

They are known to have thrown up the houses in a matter of hours, and it is not known whether they are made of mud or of woven palm leaves.

With a few exceptions, the houses are built on stilts, and are made of woven palm leaves. The houses are built in a matter of hours, and are known to be made of mud or of woven palm leaves. The houses are built in a matter of hours, and are known to be made of mud or of woven palm leaves.

For the most part, the houses are built in a matter of hours, and are known to be made of mud or of woven palm leaves. The houses are built in a matter of hours, and are known to be made of mud or of woven palm leaves.

The houses are built in a matter of hours, and are known to be made of mud or of woven palm leaves. The houses are built in a matter of hours, and are known to be made of mud or of woven palm leaves.

—Continued—



men (their number grows as we progress), who bear the precious fruits of our labors—the scientific material already collected. There, too, is a fragile load. Imagine, if you can, moving 10 or 20 miles a day through a wilderness carrying pressed flowering plants between layers of paper board, large skins of eagles, immensely long-tailed birds of paradise, and hundreds of delicate butterflies in individual glassine envelopes.

Bulk weight—surpaulus, tents, lister bags, drinking water, fuel for light, ammunition, rock salt in 50-pound bags, bedding, food, etc., make up the last third of the line. At the tail end comes the rear guard, two trusted natives carrying bush knives and shotguns. Just ahead of them trudge two boys with the medical gear. Injured personnel always show up in the rear.

Behind the carrier line proper there usually trailed a ragged tail of spectators and hangers-on. Most of the spectators were men from the villages through which we passed. Stimulated by the excitement we created, they dressed themselves in full regalia, with shells and plumes and paint, and joined the parade for a few miles through the jungle.

The hangers-on pursued us more furtively and kept their distance. They were girls—"young fella Marys"—dressed in their party best, who had somehow become enamored of one or another of the carriers and could not bear to see him vanish into the jungle.

Courtship in the New Guinea highlands runs a narrow course between romance and commercialism. It is true that women are bought and sold; a good prospective wife is worth up to 15 "things," usually right or so large shells and as many pigs. It is also true that polygamy is common and that a man's three to seven wives are virtual slaves. Their duties include working his land, tending his pigs, cooking, and rearing his numerous children.

Nevertheless, the young girl retains certain prerogatives. Though she is to be sold, she may use her womanly guile and blandishments to select the purchaser. Once she has aroused his interest, she clings to him tenaciously while he strives to save sufficient funds to buy her from her father.

How Natives Greet Their First White Man

Such was the team which traveled into the big bush. On the first section of the survey, heading southwest into the great Kubor Range, I led the expedition alone. My last contact with a white man here was at Kup Mission, pioneered by youthful Father Michael Bodnar, of Pittsburgh, Pennsylvania, whose help was of greatest value. As we followed the ancient, deeply worn trails into the rain-

forest, I found myself leading my line into populous valleys where no white man had ever been before.

The beauty and complete naturalness of the lands among the fierce but friendly people who live there are qualities of great attraction. I shall never forget my squirming and complete embarrassment when a group of them converged on me as if racing toward a god of some sort and embraced me by bending and kneeling, then lunging in and lifting me high overhead in a manner most paralyzing and personal. On the side lines others held up their right hands as if waited and flapped them sideways, repeating in sing-song, "Aya, aya, aya" (page 684).

It was from these people that I recruited my hunters, all of whom were amazingly fine marksmen with both arrow and spear. With slender three-pronged arrows, heavily barbed and fastened to long straight reeds, they kill small birds for food in great numbers. They also eat small kangaroos, fish, frogs, rats, grubs, and even mushrooms.

The highest villages I saw in this generally high country were at roughly 8,000 feet in the Chimbu Valley region. In both places the natives live in low-roofed, earth-floored, rectangular grass-thatched houses. Each is about the size of a one-car garage, with side walls three feet high fashioned from split casuarina stakes driven into the ground.

An entrance three feet wide in the center front provides the only light and air. About four feet inside a fire burns constantly. There are no chimneys; smoke filters out through the grass roof. Between 5 and 15 natives live in such a house.

A Spoonful of Salt for a Bushel of Food

Travel in the wild portions of New Guinea is vastly easier than in many other equally wild countries because food is plentiful. In the Wabari region it was our custom to "sing out" to the local chief. On hearing our needs, he would cup his big hands about his mouth and hellow out a barrage of rolling notes.

The wives then went into the fields, gathered food, and brought it to us. We paid for it with rock salt, a commodity so valuable that natives travel long distances to harvest small amounts from volcanic springs. When we paid a tablespoonful of rock salt for a bushel of sweet potatoes or a 30-pound fagot of tender sugar cane, they chuckled with glee at the hard bargain they had driven.

I was amazed to discover that these intelligent people had a comprehensive knowledge of the local flora and fauna. All men of chief rank knew the individual names, songs, and life histories of nearly every species of bird and mammal in their realm.



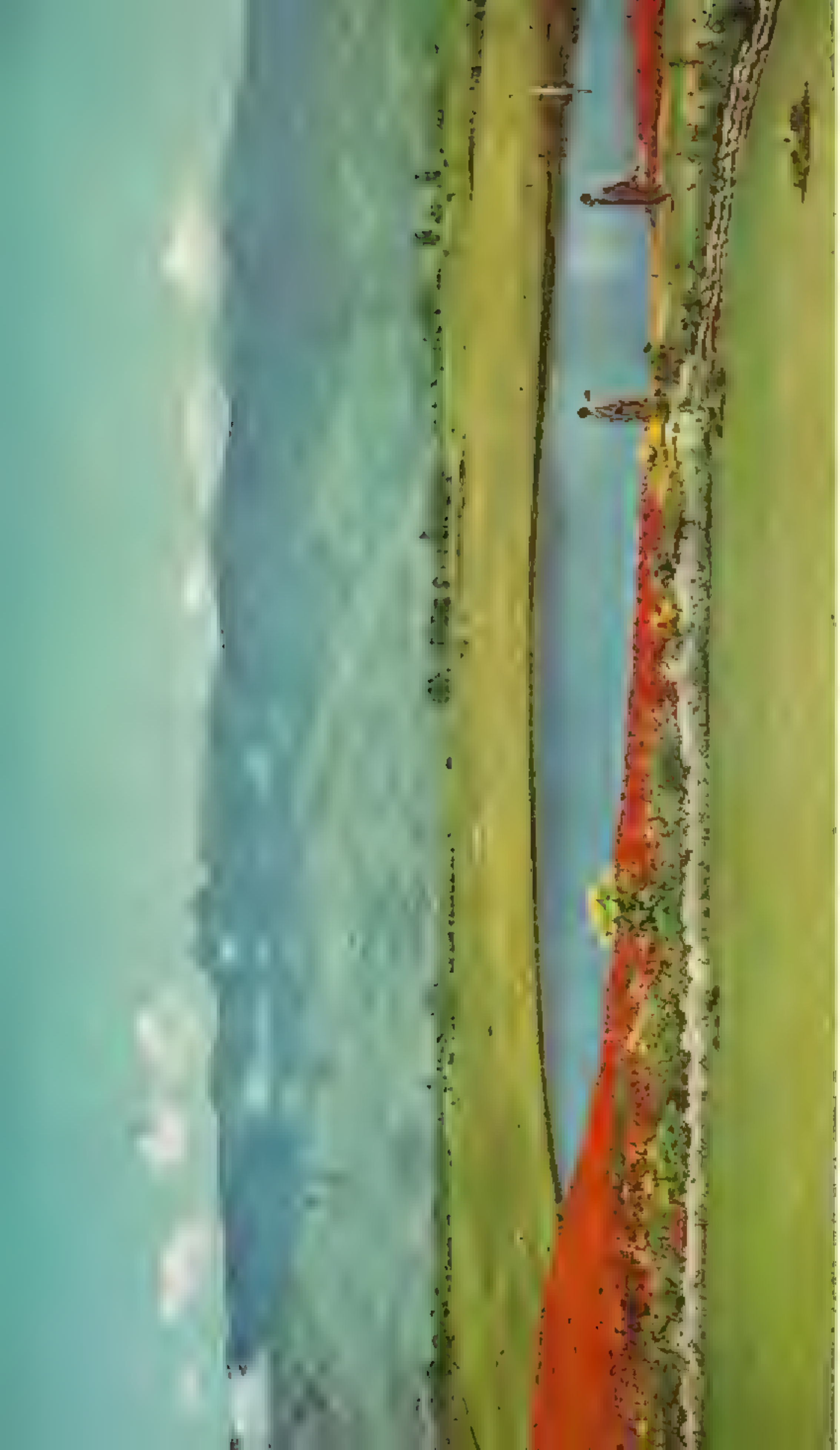
Barbary-nosed Mount Hagen Man Catches a Rare Pigeonbird Alive

Barbary-nosed Mount Hagen Man, who has been seen in the past, is now seen again. He is now seen in the past, and he is now seen in the past. He is now seen in the past, and he is now seen in the past. He is now seen in the past, and he is now seen in the past.

Young Lela Mervs' Paint Purple Eyes and Weight Lashes with Fur

Young Lela Mervs, who has been seen in the past, is now seen again. He is now seen in the past, and he is now seen in the past. He is now seen in the past, and he is now seen in the past. He is now seen in the past, and he is now seen in the past.





Sheep Down Past Australia College and Highway Cross in the Heart of Stone Age New Guinea

The Australian Government has been very kind to provide me with a copy of this book. It is a very interesting and useful book. I have read it with great interest and have found it very helpful. I have also found it very interesting and useful. I have read it with great interest and have found it very helpful. I have also found it very interesting and useful.

Wuji Highlanders Carry Some Ceremonial Axes and Imported Steel Hatchets

Wuji Highlanders carry some ceremonial axes and imported steel hatchets. The image shows a group of men in traditional attire, including feathered headdresses and patterned tunics, standing in a line. They are holding various types of axes and hatchets, some of which are ceremonial and others which are imported steel. The background is a blurred outdoor setting.







[The page contains faint, illegible text, likely bleed-through from the reverse side.]







Free the Camera While Eating? Ministry Denies

THESE two photographs, taken by a young man, a student at the University of the Pacific, are the only ones of the kind that have been taken in the United States since the late 19th century. The Ministry of the Interior, which has been the only one to take such pictures, has been the only one to take such pictures. The Ministry of the Interior, which has been the only one to take such pictures, has been the only one to take such pictures.

At the same time, the Ministry of the Interior has been the only one to take such pictures. The Ministry of the Interior, which has been the only one to take such pictures, has been the only one to take such pictures.

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The Ministry of the Interior has been the only one to take such pictures. The Ministry of the Interior, which has been the only one to take such pictures, has been the only one to take such pictures.

THE PHOTOGRAPHS WERE TAKEN BY A YOUNG MAN, A STUDENT AT THE UNIVERSITY OF THE PACIFIC, WHO HAS BEEN THE ONLY ONE TO TAKE SUCH PICTURES.

Surprisingly, they had the highest respect for the work of the naturalist. They seemed to regard this breed of white man as the sanest of the curious assortment which had so recently descended from the sky—saner, for instance, than the men who spent hours sifting the river beds for useless flecks of gold. This was a refreshing change from the view of civilized people at home toward the character who races over the landscape trailing a butterfly net.

We profited greatly from this understanding attitude. Local natives quickly joined in the spirit of the expedition and brought us rare specimens. For example, one chief ran 15 miles at breakneck speed carrying a little spine-tailed animal which turned out to be one of the rarest mammals known. It was an earless water rat, *Cratogeomys merckstoni*, much sought by naturalists in New Guinea. The only other one known to exist was found in the highlands behind Port Moresby in 1907. It has been stored in the British Museum for many years.

During the first part of my stay in the Kubors such assistance was especially valuable, since I was alone and could not stray far from base camp. Teams of natives led by a No. 2 boy appointed by the local chief would disappear for days at a time, only to emerge when they had acquired birds which they knew I did not already have. They climbed to altitudes of 11,000-13,000 feet and there collected a number of birds unknown to science.

For the first 20-odd days of the expedition I depended heavily on such local help. Then, on May 19, my assistant, Robert Doyle, flew in from Australia and, less than a week later, came trudging into my base camp in the Kubors.

Doyle, born in Brisbane and a veteran of 13 years of exploring and prospecting in New Guinea, now owns a coconut plantation on the coast of Bougainville and also operates a gold mine on the same island. When he heard from Ned Blood about the American Museum's expedition, he decided to take a vacation—exploring in New Guinea.

With Doyle to take charge of the base camp, I was able to make some more extensive field trips in the upper altitudes of the Kubors before we moved on together to our main objectives, Mount Hagen and the ribbon-tailed bird of paradise.

The Ribbon-tail Is a Controversial Bird

The ribbon-tail, besides being one of the most beautiful birds in the New Guinea highlands, has also been one of the most controversial.* The controversy centered chiefly around this question: Does the ribbon-tail

mate and hybridize with another bird of paradise, the Princess Stephanie? The adult male of the Stephanie resembles the ribbon-tail, with one important exception. While the long tail plumes of the ribbon-tail are white, the Stephanie's are black.

The argument began when a few specimens of ribbon-tail were found with tails half white and half black, or a third white and two-thirds black.

The point is an important one to ornithologists, partly because it relates to the complex and highly standardized courtship rituals which the birds go through at mating time. These rituals, varying from one species to another, often fail to prevent hybridization.

So hot did the argument become that in 1950 it was suggested that all of the meager evidence available be gathered and analyzed before a board of authorities at the Tenth International Ornithological Congress in Sweden.

The Answer to the Riddle?

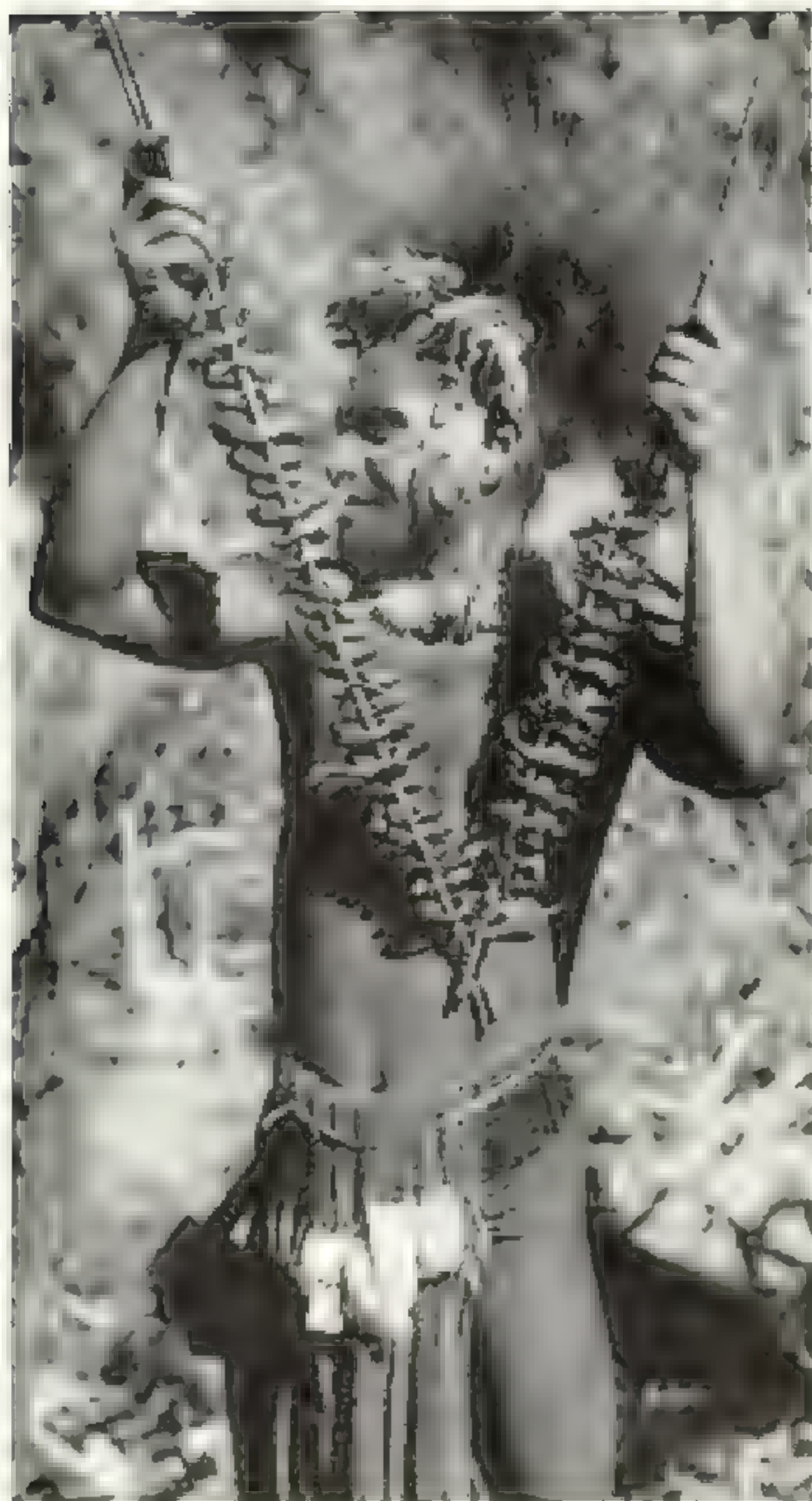
I think I found the answer to this famous riddle. On Mount Hagen we found the ribbon-tail living in great numbers in the 7,500-10,000-foot zone. In fact, in the deep virgin forests we were startled to find that, except for the prolific swiftlets, the ribbon-tail was the most common of birds.

To display their gorgeous and shimmering plumage, birds of paradise sometimes choose clearings on the ground in deep forests, but more often select branches high in the trees. Favorite branches are used so frequently they become skinned with wear. Usually the birds, including ribbon-tails, pick trees commanding vistas of forest and valley; favorites are dead trees at the forest's edge where there is no foliage to obscure the view from admiring females.

However, as I hunted through the forest of Hagen day after day, observing many birds of paradise, I did not see a single adult Stephanie. Moreover, it would have been hard to miss one if it had been present. With its brilliant green, yellow, and black plumage, the adult male Stephanie cannot be mistaken for any other bird in the world.

In the absence of this important ingredient, hybridization seems highly unlikely. Recent study of the species in New York indicates another answer to the variegated tails: they are simply signs of juvenility. Some birds of paradise are known to take four and perhaps as many as six years to develop their full adult finery. It seems likely that the ribbon-tail starts life with a dark tail, which

* See "Strange Courtship of Birds of Paradise," by Dillon Ripley, NATIONAL GEOGRAPHIC MAGAZINE, February, 1950.



Skewered Skulls Prove the Hunter's Skill

Native hunters in the Amazonian forest are proud of their skill. Now, however, the trophies they bring home are animal skulls. Skinning says that human skulls once decorated the trophy racks, now only animal heads are shown.

slowly turns white during a long adolescence.

As exciting as finding the rufous-tail was the discovery, deep in the forest, of the dance ground of the *Archibuteo* howlerbird. Members of this species choose a spot overgrown with tall ferns and make a clearing roughly oval in shape and about four feet long. The front of the howler is padded with dried fern fronds. In this arena males and females appear to meet daily to dance, cavort, and perform their specialized courtship.

So excited was I over the first specimen of this howlerbird to be brought into base camp that with great ceremony I paid the equivalent of a year's wages for it. Ordinary payment for a bird, until now, had been half a thumbful of red beads.

A Fortune for a Bird

A bird was worth a store of a steel ax (one month's work), two good flipsticks (two or three half months), a large standard battle knife (one week), a Collins machete (one month), a box of sorted matches, small shells, newspaper, salt, and a much smaller amount of other things.

My motive in making this outrageous payment, which visibly staggered the 70-odd native onlookers, was to stimulate the gathering of specimens. Our time on Mount Hagen was now getting short.

A colorful but rather monotonous picture in the tropical rain forest—a landscape where the trees resound to the screams of monkeys, the huge cack of birds, the incessant buzzing of insects, and the hissing of ferocious reptiles. This colorful picture, wherein one must patiently wait together to see if it will crawl away, is based more on reflection than on truth. For this season and I have hunted high mountain forests for bird-watching more than for trying to obtain more than a single sex or age of bird in a day. The large taxidermist is waiting in the forest but must use every minute at his command.

In early July another event helped speed up the work of tagging, preserving, and classifying our game. Helped by an

interesting assemblage of native vultures followed the trail, the third partner in our expedition arrived from Nondigh. He was William Lamont, sportsman, hunter, veteran of two World Wars, and long time resident of New Guinea. He and I had worked together on another expedition two years earlier. To join the present one he had chartered a plane, flown in as far as he could, then walked the rest of the way, hiking the last 60 miles mostly at night, in two days (page 487).

For the next three weeks, Doyle, Lamont,



Wreckage of a Wartime B-17 Sparkles on Mount Wilhelm's Rocky Shoulder

Thirteen Americans were killed in 1945 when the plane crashed against the 15,400-foot mountain. Fragments were scattered across half a square mile. Here the author examines a propeller and a bone.

and I held down camps thousands of feet apart on the south flank of this great mountain. Hunting was done from a hut built at 11,000 feet, 200 feet above the tree line.

At this altitude there are fogs, chill winds and occasional frosts. We equipped the natives who stayed at the high camps with rain capes, blankets, shirts, *lap-laps* (cloth kilts), and woolen sweaters. Unfortunately many of the men seemed to regard these as too valuable to wear and carefully stored them away.

One night at 2 a.m., in a driving wind, I inspected their gun house and found them practically nude, as always, rolled in tight knots and shivering noticeably in the beam of my light. All were wide-awake, but seemed to be in a torpor; even the smoky fire had been allowed to die. Thereafter I assigned one native to sleep all day and tend fire all night.

Off to the Bismarcks to Find a Duck

One species of bird I sought was not to be found on Mount Hagen or in the Kulors. This was a rare duck, *Salsadorina*, which has been the object of several expeditions sent halfway around the world. As a likely hunt-

ing ground I chose Mount Wilhelm, in the Bismarck Mountains. Standing 15,400 feet high, tallest peak in eastern New Guinea, this mountain has two lofty crater lakes which I hoped might provide a habitat for these extremely rare birds.

To get there we enlisted the aid of Robert Gibbs, one of Australia's most decorated war heroes and now a noted professional bush pilot.

With a Cessna and a fuel pilot would I attempt the trip from Wabef to Mount Wilhelm. The flight leads through the great Chumha gorge, where giant forested walls rise to 10,000 feet and box in the plane on three sides. The landing must be made on a steeply ~~scattered steeply covered~~ ^{scattered} slope with native labor at 8,300 feet on the mountain's flank.

Gibbs put the plane down as lightly as a feather. After we had piled out 10,000 myself, and six trained natives—he took off again immediately, promising to return for us at 9 a.m. 17 days later.

In this region, population pressure has pushed native farming up the mountain to a height of 8,300 feet. Below this, the land

has been denuded of trees and planted again and again in sweet potatoes. Some of the gardens are so steeply terraced that ladders are used to get from one level to another.

The soil appears rich and dark, but in reality contains a large amount of insoluble clay. The hill farmers, struggling to keep one step ahead of starvation, have worked out a precise system of rotation to rejuvenate their worn-out land. This involves alternate plantings of casuarina trees, reeds, sweet potatoes, small tubers, and a sort of grass known as New Guinea asparagus.

The casuarina trees, after a time, are systematically stripped of their limbs. These, along with special reeds planted on the fallow land, are periodically burned. All the while, pigs turn and manure the soil until it is ready for planting again. It will now yield large, nutritious potatoes for another two or three years, then small ones for an equal period. After this the cycle begins once more.

Among these mountain farmers lives Father V. Tropper, a missionary who pushed into this wild region soon after it was discovered. He is greatly liked by his native flock. At his request they shouldered our gear and a large supply of native food and helped us to our objective: two clear lakes surrounded by jagged peaks of bare rock reaching more than 15,000 feet. The lakes were ringed with patches of beautiful, mossy rhododendron forest, thick and almost impenetrable. Once there, the natives left us on our own.

Here we collected and prepared skins with a fervor which sometimes carried us almost around the clock. At times frigid winds forced us to sleep in our feather-lined sleeping bags but our beds were warm. The vegetation was superb. We were in New Guinea in September. Best of all, we found the lakes thinly populated with Salvadori's ducks, two specimens of which we were able to collect.

Challenge: a New Mountain Peak

The local natives identified a promontory just above us as the true top of Mount Wilhelm. However, during several collecting trips to 13,000 feet and beyond, we observed and sketched a peak considerably higher to the north. We finally realized that the natives were wrong about the true location of the summit. Yet the lower peak, we knew, was the one that had been climbed and marked as the top of Mount Wilhelm.

Almost against my better judgment, for this was not a mountain-climbing expedition, I decided to tackle the true summit. My plan was to leave before dawn, climb until 1:30 p.m., and then, regardless of how far I had gotten, head back for the lake camp. Dawle, who had had a bout with mountain

sickness, would stay behind ready to send up a rescue party if necessary.

We started from base camp over well-prepared hunting trails, pioneered by Dawle, bordering the lakes. Then we worked our way several thousand feet up a great stony flank to cliffs split with chimney cracks. From the top of these cliffs a long ascending knife ridge undulated northward to the foot of the imposing rock pillar which was the actual crown of Mount Wilhelm.

By great good fortune the day turned bright and clear, and by 12:10 p.m. I stood with two natives from Nondugl on the summit, 15,400 feet above sea level. I then wrote a note on the stationery of the American Museum, giving details of the climb, and sealed it in a bottle. This I placed under three stones on the summit of the sharp peak.

B-17 Marks a Tragedy

With my binoculars I could see, half a mile away, a cairn which had been erected on the other peak, about 300 feet lower than the one on which I stood. Farther east on a rampart of this same mountain glistened the remains of a B-17 which had crashed in 1944 with 13 American deaths (page 679).

The vista of mountains to the east and to the north and northwest—the Finisterres, the Schraders, and the great tail of the Bismarcks—was less clear than off to the west, where the valley of the Waligi lay in the distance. Behind this lay the backdrop formed by the 50-mile Kabor Range.

To the southeast rose the great peaks of the Kratke, the Herzog, and, far off, the Owen Stanley Ranges. We sat for some 40 minutes, shivering by the tiny cairn. Before we left, I unwrapped from its waterproof casing and held aloft flag No. 128 of the Explorers Club. Then we headed back down to the base camp.

When we left New Guinea early in August, we took with us 1,500 study skins of birds, representing 136 species and subspecies; more than 20 have proved unknown to science. Among them was a new bowerbird, which we named for the late Dr. Leonard C. Sanford, trustee of the American Museum and sponsor of this expedition. We had also secured 900 skins and skulls of mammals, 650 herbarium specimens of flowering plants, and some 500 butterflies of 32 species.

Behind us, with real regret, we left hundreds of natives who had become our friends. We also left, for later expeditions to explore, the many unknown mountain ranges and pockets of Stone Age civilization still undiscovered in this naturalists' paradise.*

* For additional articles on New Guinea, see "New Guinea," *National Geographic Magazine Cumulative Index*, 1890-1940.



Photo of Green Leaves Dance
from River Bank of Wading M.

The Green Leaves Dance is a traditional dance of the Wading M. people. It is performed in a line, with the dancers holding long wooden poles or spears. The dance is a celebration of the green leaves of the Wading M. people.

When a Chief Yelad, "Bring I said!"
His "Merry" Dances are shown

The "Merry" Dances are a traditional dance of the Wading M. people. It is performed in a line, with the dancers holding long wooden poles or spears. The dance is a celebration of the green leaves of the Wading M. people.





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Group of people in the forest, near the river, near the falls.

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4 Husband Wears What is Called Two
Feet and one Shell Necklace

Yakima, Wash., Aug. 10, 1908. A young man and woman, both of whom are of the Yakima tribe, are shown in the above photograph. The man is wearing a necklace of two feet and one shell, and the woman is wearing a necklace of two feet and one shell.

5 A Young Indian's Heavy Sun Ring
from Brow to Nose Tip

Yakima, Wash., Aug. 10, 1908. A young man of the Yakima tribe is shown in the above photograph. He is wearing a heavy sun ring from his brow to his nose tip. The ring is made of wood and is painted with red and white.



Berlin, Island in a Soviet Sea

BY FREDERICK G. VOSBURGH

With 110 illustrations by National Geographic Photographers Leonard H. Hoag

At a Russian hut in the middle of the road, wooden barriers blocked the broad route to Berlin from West Germany. A Russian soldier with purple-red shoulder boards, hammer-and-sickle insignia, and a businesslike-looking submachine gun waved our car to a halt.

Illing out, we went into the little hut, bare except for pictures of Stalin and Lenin.

Behind a wicket sat a Soviet soldier with a peasant face and suspicious, knowing eyes. In limping German he demanded our orders and passports, then squinted up shrewdly at the National Geographic photographer, "Kurt" Wentzel.

"Wentzel," he said. "You are a German."

"No," said Kurt, indicating his U. S. passport, "American."

"Deutscher Name, Deutscher Name" (German name), the Russian insisted.

An Indian to the Rescue

"In America," I interposed, "there are many people with German names; many with Russian names, too. In fact, all our names came from some other country, except those of some of the Indians. They were the only people living in America in the beginning."

The Russian looked utterly blank, as if he had never heard of an Indian.

"Here, I'll draw you a picture," said Kurt.

Quickly he sketched an Indian chief, complete with hawk nose and feathers.

Light dawned. The simple face creased in a smile. Nose close to paper, the soldier scrawled in his big book, banged a Russian stamp on our orders from the U. S. High Commissioner for Germany, then handed us back the papers.

"OK," he said in English. The noble red-skin seemed to have saved the day. But as we left, the Russian was still repeating "Deutscher Name, Deutscher Name," like a child wrestling with a problem too big for him.

A Slip in Geography Means Trouble

This encounter at Helmstedt last spring was our introduction to the Russians, who control all access to Berlin, deep in their zone of Germany (map, page 694).

Just before, at the United States check point, an American Military Police sergeant had given us a well-intentioned geography lesson.

"On the way back from Berlin," he said, "the road forks. A sign on the fork to the

left says Frankfurt on Oder. Lots of people confuse it with Frankfurt on Main, headquarters of the U. S. High Commission. They turn left and wind up on the outskirts of Leipzig, deep in the Soviet Zone—if the Russians don't get 'em first.

"It usually takes several days of parley with the Ruskiies to get 'em out. We're not allowed to go in there to help 'em; in fact, neither you nor I can go more than 13 feet off this Berlin road.

"Good luck, now. After you pass the Russian check point, don't pick up anyone, don't stop, don't take any pictures, and don't cover the 104 miles to our Berlin check point in less than two hours. We've checked your time, and if you do, we'll know you're too fast. If your car breaks down, fill out this slip and give it to a passing driver. Then one of our patrols will bring you help.

"If our men haven't checked you in at Berlin in four hours, and we haven't had any word from you, we'll come out looking for you. So long."

The Russian check point at Helmstedt was clogged in both directions with big German Diesel trucks and trailers, halted for checking loads and papers. But a Red Army man glanced at the hard-won Russian stamp on our orders and waved the barrier up. "Gute Fahrt," said the usual German highway sign, meaning "Good passage" or "Open road." We were in the Soviet Zone.

Running a Propaganda Gantlet

For more than a hundred miles we ran a gantlet of propaganda. Every overpass bore a big-lettered proclamation from the Communist Party line:

"One Berlin for All Germany," "Arm with Votes for Berlin," "Vote for, for, for—No Third Front! Fight Against the U. S. Government of West Germany," "I can win for the U. S. Government" (meaning, of course, unity under Soviet domination), "Ami Go Home" ("Ami" is a derisive term for Americans), "All Germans at One Table" (picturing a fat U. S. soldier with his feet on the tablecloth while Germans show him the door).

Most signs were in German, one or two in Russian, and some in English and French. One in English needed proofreading: "Order the Investigators of War to Put a Stop to!"

As I read the anti-American propaganda of our wartime ally, I remembered German signs in English on the overpasses as our armies

rolled into Germany in 1945. "Onward, Slaves of Moscow," one had read. "You want Berlin, but You Will Get Moscow."

"Green Tunnel" to Berlin

The wide double-lane express highway, or Autobahn, to Berlin is like a tunnel, you see so little. The only large city we saw from the road was Magdeburg, with its factory chimneys, some smoking, others idle. One distant factory looked half destroyed, half dismantled. An occasional windmill poked at the sky; farmers drudged in the fields with a cow, a rare horse, or an ancient tractor pulling plow or harrow.

Once we passed a German truck, halted by patrolling Russian soldiers. They swarmed all over it. A Red Army armored car stood by with menacing gun. Forbidden to stop, we never found out what the luckless driver was supposed to have done. At another point we saw a car burning mysteriously at the side of the road with no one in sight.

Much of the route was a two-tone painting in green—the leathery light green of birches against the dark green of pines. Pink and white fruit trees were gay as Easter bonnets. Along some stretches pinewoods had been razed, and crops were struggling among the stumps. That policy of wholesale stripping must have pained the tree-loving Germans.

On Berlin's outskirts we passed another Russian check point—without having to draw an Indian this time—and breathed free air again. Neon white signs announced we were entering the U. S. Sector. American soldiers in khaki "suntans" never looked better to us.

One last reminder of the Russians was a Soviet tank of World War II, high on a concrete pedestal. They left it in memory of the part played by armor in the Red Army's capture of the capital of Hitler's Reich.

Here in the southwest suburbs, Berlin looked like a summer resort. Fat and lazy, the Havel River forms a chain of limpid lakes.

Grosser Wann See, Kleiner Wann See, and a series of other "Sees"—like a meat from north to south. Lakes, rivers, canals, and woodland parks cover more than a fourth of Greater Berlin, one of the world's most spacious cities. Its area is five times that of the District of Columbia.

Soviet Holds 45 Percent of City

To visualize split-up Berlin, one must try to imagine Washington—God forbid—apportioned like a pie among four victorious powers, one of them a Communist dictatorship. The dictator's minions hold the biggest section, about 45 percent, including most of the Government buildings—or what is left of them.

Ranging the countryside roundabout, the

dictator's armies encircle the city. No train, truck, car, or barge can move in or out without permission. The only road link with free territory is the autobahn from Helmstedt in the British Zone of Germany, 104 miles away, almost as far as from Harrisburg, Pennsylvania, to Washington, D. C.

Yet, despite their long ordeal, Berliners didn't act like people under siege. When we asked directions, the response was quick, accurate, winged with a smile.

"People here pride themselves on being 'Der helle Berliner'—the bright Berliner—a little more alert and quick of wit than other Germans," remarked Kurt.

At a gas station a bright attendant smiled at our tank.

"You've been using German synthetic gas," he observed. "I can tell by the smell." (It's nauseating.)

"In fact," he added with professional pride, "I can recognize American, French, British, and Russian *Gasolin*—all just with the nose."

When we stopped to use the phone at a taxi stand, drivers found me the number before you could say "Götterdämmerung." They seemed eager to help Americans.

"There's a great fellow feeling, especially since we and the British fed and fueled the city by airlift and made it stick," said an American official at U. S. Sector Headquarters in the suburb called Zehlendorf.

Once used by the German Air Force, the building stands, big and white, on former Kronprinzen Allee, now renamed Clay Allee in honor of Gen. Lucius D. Clay, who headed the U. S. occupation of Germany during the airlift.*

A street near by is named for an earlier, much-admired American character. It's quaintly called Ukel Tom Strasse (page 692). We could not find a Little Eva Lane, however.

Soviet Sector Dubbed "West Moscow"

Before exploring this city of schism, we took a long look at a map to avoid going into the Soviet Sector by mistake. Seventy-seven percent of the streets leading into it are barricaded or patrolled by Communist police. Some are marked with signs, but a few are signless primrose paths that might lead into trouble. Later we planned to go there, but we didn't want to blunder in, unprepared, and risk having our car confiscated.

If the Communist police of the Soviet Sector find anything they consider incriminating, like West German marks or a copy of the *London Times* or *Stars and Stripes*, the result may be days of durance—worse if the unwitting guest is on the Communist black list.

* See "Airlift to Berlin," NATIONAL GEOGRAPHIC MAGAZINE, May, 1949.



(4)

Free Berlin Flashes News to Neighbors Across the Invisible Communist Curtain

A "radio flash" announcement of the news of the Soviet Union's victory over the Axis powers was heard in the Soviet-occupied zone of Germany. Under the heading "The Free Berlin Press Reports," the announcement stated that the Soviet Union had won the war against the Axis powers. The news was reported by the Soviet Union's official news agency, Tass, on May 8, 1945. The announcement was received in the Soviet-occupied zone of Germany on May 9, 1945. The news was received in the Soviet-occupied zone of Germany on May 9, 1945.

In the Soviet-occupied zone of Germany, the news of the Soviet Union's victory over the Axis powers was received with great enthusiasm. The news was received in the Soviet-occupied zone of Germany on May 9, 1945. The news was received in the Soviet-occupied zone of Germany on May 9, 1945.

The news of the Soviet Union's victory over the Axis powers was received in the Soviet-occupied zone of Germany on May 9, 1945. The news was received in the Soviet-occupied zone of Germany on May 9, 1945.



Shades of Love: Lynal & Children's Symposium & Hands-on Arts Museum Tour, Two Street

Russia's share of the city plots that form the White Mountain "barren" is 10. The "barren" plots on the slope were with a number of long-past landowners.

City Leads a Double Life

[illegible]

in 1949, after a Communist rebellion the
 Ben Communist majority in the national
 government under a British colony, Ltd.

Chlorophyll *a* and phycocyanin were determined by the method of Lichtenthal and Whaley (1973) and the total chlorophyll content was determined by the method of Lichtenthal (1987). The chlorophyll content was expressed as mg/g of dry weight.



On May Day Half a Million Berliners Mass Against Communism

The first of a party of about 500,000 Berliners, mostly men, gathered on May Day in front of the Reichstag building. Many of the Berliners, from all over the city, were carrying flags and banners. The crowd was very large and the atmosphere was very festive. The crowd was very large and the atmosphere was very festive.

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Metropolis Has More Than a Million

As we drove through the city, the atmosphere was very festive. The crowd was very large and the atmosphere was very festive. The crowd was very large and the atmosphere was very festive. The crowd was very large and the atmosphere was very festive.

Despite all the excitement in the West, the atmosphere was very festive. The crowd was very large and the atmosphere was very festive. The crowd was very large and the atmosphere was very festive. The crowd was very large and the atmosphere was very festive.

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Berlin's population has dropped more than a million since before the war, when the German capital, largest city in the Continent, ranked third in the world in population, surpassed only by New York, London, and Tokyo. Today's population of more than 2,000,000 in the Russian sector is 45 per cent of the pre-war level.

Barred and rationed apartment buildings

BERLIN



Piece of City Split Like Berlin, with Communists Holding Nearly Half

Soviet Russia rapidly controls the big city, which contains two-thirds of the total. Communist East Berlin, with its one-day "elections," is dubbed "West Moscow" by Berliners (page 643). Free secret ballot chooses city fathers of West Berlin, comprising American, British, and French Sectors. Inset locates the former capital, which sits at the end of a 100-mile road to the Danzig-Berlin highway through the Russian Zone of Germany. Places shown are limited largely to those named in the article.

ings often have stovepipes sticking out through the walls. With coal still scarce, Germans can't be bothered trying to keep central heat-
ing going. The result is a city with very few houses that are really warm.

Even in the more comfortable Western part of the city, many German soldiers' dark, skull. Such a casualty, dead though still on its feet, is the Kaiser Wilhelm Memorial Church overlooking Berlin's resurrected Brandenburg Gate (page 644).

Berlin's New Mountains—of Rubble

But most of the rubble in the Western Sectors has been cleared for the busy hands of Berliners. In both zones, the city fathers were promptly put to work with Marshall Plan money. Salvaged bricks and lumber go into new construction. The waste forms miniature mountains in the outskirts, and in Berlin's Central Park the Ferguson district. "Am-
erican Garden" once means garbage.

In the Tiergarten the blasted ruins of a children's playground were being
demolished. In September, 1945, the city fathers
and the new and
symbolic landmark in Berlin's general level
of ruin. Left to grow grass, flowers, and trees
which clothe these grim reminders of the con-
sequences of making war.

Stone statues of former rulers of western Germany seem ironically, almost inhumanly
conspicuous in the Tiergarten and along the
Sagres Allée, or Avenue of Victory, a mock-
ingly inappropriate name today.

Stripped of most of its big trees, the Tier-
garten is as naked as the head of a French
girl caught in a rooming with Germans during
the war. Berliners had to burn the trees to
keep warm during the last postwar winter.

"We had a hard time getting them to do
it," recalled an American official. "The city
fathers said, 'We'd rather be cold.'"

But eventually many trees had to be burned.



Blueshirted Young Communists of East Berlin Recall the Hitler Youth

They recall the Hitler Youth days as a time of "hard work" and "discipline" but also as a time of "fear" and "hunger." The young men, who are now in their late teens or early twenties, are marching in a parade in the Western Sector of Berlin. They are carrying large drums and banners. One banner reads "JAHRE MIT STALIN" (Years with Stalin).

Even the Kurfürstendamm and other famous streets were once upon a time used for fuel in the winter of blockade and airlift. Now their places are taken by two million new little trees, brought from West Germany and set out with Marshall Plan aid.

Along the Kurfürstendamm and other important streets in the Western Sector, Marshall Plan funds have helped repair old buildings and rent new ones. Among them we find the new hotel, a larger radio newspaper plant, all bearing signs reminding Berliners where the money came from.

"We Like to See Nice Things . . ."

New shops on the Kurfürstendamm were crowded with luxury goods—sneakers, neckties, handkerchiefs, prices roughly comparable to those on Fifth Avenue. Anyone with enough marks could buy them, but most people have to content themselves with wool sweaters, jeans. More than 2,000,000 West Berliners are out of work because of the Russian grip on the city's surrounding trade area, and the average income is only about 250 Deutsche marks a month.

"We have seen so many poor things that we like to see nice things on the Kurfürstendamm," said a West Berlin doctor's wife "even if we cannot buy them."

She and her husband had a cold as they ate dinner—well-cooked veal cutlet, or chicken, or beef, potatoes, and sauerkraut—before their 14-year-old daughter, a nurse on vacation, asked the English translator this:

What are you doing?
He said nothing.
Then she asked her father:
What are you doing?

Then all joined hands around the English and wished each other "Guten Appetit."

"To get into Communist territory," said the doctor, "you have to take care or you risk to be arrested."

"A young man I know was on his way to visit his parents in the East Zone and was reading a little children's paper on the train. On his 14-year-old son, Julius, he said I got lost in the East. He was arrested, but the arrested police saw all his money was examined. Finally they let him go."

Julius's name was long and serious.



THE WEST BERLIN'S PET HIPPOPOTAMUS, LOVE, TROUGLED AT THE IRON CURTAIN

"During the whole Nazi time, the doctor examined everything was said in military order in further to him. Every boy had to have his own of shoes. Now even the boys were the same and he was attached to the military hospital.

The boys at his age are becoming great cyclists, but not yet.

but of course the rate jumped 5 percent to 13.75 percent, the rate that 30 percent of the West Berlin banks have to pay.

ter and more abundant in the well-stocked West Berlin stores. Communists who have the money often come over to buy shoes, bicycles, tires, spare parts, light bulbs, butter, textiles, medicines. Life on the Soviet side is hard, and little can be bought there except the barest necessities.

In contrast, the good things of life are so readily obtainable in the West Sector, if one can afford them, that the West Berlin publisher's wife told me last summer that she was actually sending packages to friends in England, mostly sweets.

Although carrying Western marks into the Eastern Sector is a criminal "currency offense" to the Communists, changing one kind of money for the other presents no problem. Downtown West Berlin is dotted with *Wechselstuben*, or "Exchange Rooms," for the purpose (page 700).

These money-changers exist primarily for the benefit of the thousands of Berliners who commute daily across the line dividing the city. More than 62,000 West Berlin residents work in the Soviet Sector, though the number is steadily decreasing; some 45,000 who live in the East have jobs in the West.

West Berliners working in East Berlin are chiefly skilled specialists and accordingly get somewhat higher pay than the average Soviet Sector worker. Income in East Berlin averages about the same number of marks—250 a month—as in West Berlin, but the cost of living on the Communist side is roughly 25 percent higher.

An Hour Behind the "Curtain"

On May Day afternoon Kurt Wentzel and I took a stroll in the hammer-and-sickle section. We walked a bit warily, for up to that time 24 West Berliners connected with the press had disappeared on similar walks or had been kidnaped in West Berlin and swallowed up in the silence on the other side.

Americans were supposed to be safe, subject to several ifs—if they didn't take pictures or ask prying questions, if they didn't carry "capitalistic propaganda" such as a Western newspaper, and if they had no West German money.

Flat in the pockets, we walked through the invisible curtain at Berlin's Potsdamer Platz. No fence or barricade marked the boundary; merely by crossing the street we entered the Soviet Sector (page 697).

Although we were speaking English and the angle of my snap-brim hat must have marked me as an American, patrolling police took no notice of us as we strode toward Unter den Linden. In fact, when we stopped to ask directions, one told us just how to reach the Lustgarten, or "Pleasure Garden," which

serves as a Communist rallying place, like Moscow's Red Square.

Our route led past the tumbled remnants of Hitler's Chancellery and the site of the air-raid shelter where, according to all available evidence, the Nazi dictator went to a suicide's death in the toppling ruins of his "thousand-year Reich." Communist wrecking crews long ago blew up the bomb shelter, and now they had all but erased the war-battered concrete-and-stone Chancellery; today its stones stand anew—in mammoth Berlin memorials to Stalin and the Red Army.

On and near Unter den Linden much clearing and building had been done, for the Russians are trying to turn this famous street, heart of Berlin, into a Soviet show place. New buildings were largely Government agencies, including a huge new white-marble Russian embassy. Whole streets near by still gaped in ghastly ruin.

Marchers Belie "Peace" Posters

But surely there was no lack of advertising: two- or three-story-high posters and signs banged away at selling one thing, the Communist Party line. In contrast to Western Sector signs advertising toothpaste, light bulbs, and Mercedes cars, these urged outlawing the atom bomb (baked long ago by the Russians themselves), protested the "capitalist aggression" in Korea, and warned, "Don't Let Berlin Become a Second Seoul."

Ten-times-life-size pictures of Stalin and German Communists wearing benevolent expressions looked down at holiday crowds, and a voice as excited as Hitler's harangued them in German through loud-speakers.

To turn the Lustgarten into a huge "Marx-Engels Square" for Communist gatherings, the Russians razed the old Schloss, or Palace, where Kaiser Wilhelm II gave the orders for war in 1914.

"Protest the remilitarization of Germany," urged a long cloth sign in the Lustgarten. The red-lettered words formed an ironical caption for a dark military column marching directly beneath them—ride-toting men in black jackboots, midnight blue uniforms, and black raincoats that recalled the old Nazi SS troops.

These Mauser-carrying marchers were German Communist *Bereitschaftspolizisten*, or "Alert Unit Police," trained by the Russians in secret-police methods and use of modern military weapons. The U. S. Department of State says this army of "police" in the Soviet Zone of Germany was organized in November, 1946, and now numbers 53,000. Some of its members, the Department says, are trained in the use of tanks, machine guns, artillery, and even aircraft.

If any of the onlookers in the broad plaza noted the irony of the grim column surmounting a street a backdrop of white houses, Western reminders that they gave no sign.

On Unter den Linden we saw other columns marching - young boys and girls in the Hitler Youth and those of the Little League. Legend, the Communist youth movement now outlawed in West Germany. They could have been Hitler Youth on the eve of World War II. We were not and changed but the color.

President and lawmakers have stepped in this early morning compared with the last morning of the 1994 Mid-East Peace Summit, when they seemed to be going in circles. This time, state, national, and global leaders have agreed to the 1995 Declaration of Principles to begin the peace process. The declaration is the first step in a series of steps that will lead to a final agreement on the future of the land. The declaration is a landmark in the history of the Middle East, and it is a step in the right direction. The declaration is a landmark in the history of the Middle East, and it is a step in the right direction. The declaration is a landmark in the history of the Middle East, and it is a step in the right direction.

Berliners' Cheapest Movie Bouts

Last morning held a million Berliners had gathered in a religious assembly in front of the first section of the Berlin wall. For weeks, great gaps at the boundary between two worlds. United and on one on the little stars newly set out in the sky. From there had come to cheer their second Democrat Mayor Ernst Reuter and other May Day speakers, and to show their solidarity against Khrushchev's mediation. Thousands from the Soviet Sector joined a demonstration to stand with their friends in defiance of their Communist overlords. (page 225)

"How can you be so brave and light-hearted," asked Miss Hunter next day, "when the Russians could seize the whole city at any time?"

How can you give otherwise? The Governing Mayor of the *Freie Hansestadt* of West Berlin responded in slow but good English: 'If you have to ask it, you must ask it.' The population of Berlin has very proud of their German, the expression of what the people are thinking. The *Freie Hansestadt* cannot be built up in the years we have stood together.

He, however, knew his 17,000-acre farm
his law went fast with determination.

It is the cheapest accommodation in the



A Puzzled Newcomer from the East Gets Help

[illegible]

the front corner, respectively. The dynamic behavior at the four corners of the car is the subject of a paper by

[illegible]

They hang down on our heads, stretching

I would like to see the question, the day after tomorrow, settled, and I am sure it will be settled against the Germans in the East.

The MA or master of ceremony is responsible for

You may find people have said "and so on" to the parts of their prayer. But a prayer of response is a ritual by which we become a part of the prayer of the church. You



Luxuries Again Tempt Shoppers on Berlin's Kindertoren Dayen Show Window of the West

Berlin, Germany, Jan. 10.—(AP) — The show window of the West...

...the show window of the West...

metropolis had been dispersed by the Nazis to avoid bombing (10 percent), destroyed by bombs, artillery, or street fighting (15 percent), or taken east as reparations by the Soviets (60 percent). In addition, Berlin business found itself almost entirely cut off from the surrounding Soviet-held State of Brandenburg, with which many of the city's industries were closely geared.

Despite these past and present difficulties, West Berlin industries are grinding out radio tubes, light bulbs, paper, furniture, shoes, precision instruments, machine tools. There's even a stained-glass window factory. Berlin's varied output is sold in West Germany or abroad, where it earns much-needed foreign exchange.

Some of the factories are refugees, like Kurt Miller's shoemaking business. Still, once was codirector of one of Germany's largest shoe-making plants in Breslau, now under Polish administration. After the war he used up a lot of his own shoe leather by walking from Breslau to Berlin. There he set up a tiny shoe-repair shop that has blossomed into a small but busy shoe factory.

In many cases, manufacturing firms have moved secretly across the line from Communist East Berlin. The heavier machinery had to be left, but proprietors and loyal workmen smuggled much of the smaller equipment across in suitcases. If a machine or a part was too big, they cut it in two and welded it together later.

Some firms, it is true, have fled from West Berlin to West Germany, because of intolerable difficulties. But enough are left to keep the free semicity alive, if not prosperous, with Marshall Plan help.

Good Music Cheap, Installment-plan Art

Music, too, has refused to die. The Berlin Philharmonic Orchestra once again is one of the finest in Europe. Ballet and opera flourish at the Municipal Opera House in the British Sector. The well-paid Symphony Orchestra of RIAS, Radio Station in the American Sector, is rated tops by critical Berlin listeners.

Tickets to West Berlin concerts range from two to 20 Deutsche marks (about 48 cents to \$4.80.) Groups of workmen and students get even lower rates.

Furthermore, West Berlin makes it easy for its eastern neighbors to share its musical entertainment. They are permitted to pay the same number of marks in their Communist currency, really worth only a fifth as much, if they can show an East Zone or East Sector identity card.

Art as well as music has revived. At least one West Berlin dealer sells paintings on the installment plan. Thus purse-patched cus-

tomers can enjoy the pictures while they pay.

Higher education has had a rebirth. The Free University in West Berlin has 5,000 students, nearly half of whom now come from Communist territory. It was set up in 1948 after students balked at rigid Communist control of the University of Berlin on Unter den Linden in the Soviet Sector. From America last August came a \$1,309,300 Ford Foundation grant to help the struggling Free University.

Visitors who remember the lethargic Berlin of the immediate postwar years see a decided change in the Western Sectors today. People look fresher, healthier, better fed, better dressed. I heard none of the "American swine" talk reported by visitors of five years ago.*

75 Percent Want to Share Defense

Berliners told me with apparent sincerity that they liked having Western troops around as a deterrent to the Russians. A recent poll showed that 75 percent of West Berliners wanted to share, physically and morally, in defense of the West against Communism.

True, they feel—like their Mayor—that this defense can be accomplished without war. Typical of German war-weariness was a 22-year-old boy working as a waiter in Berlin. Captured by the Americans at 16 and released with the coming of peace, he had tried repeatedly to get out of Germany. Bent on fleeing to America as a stowaway, he was turned back in the Netherlands, in Belgium, in France, in Spain.

"I don't want to get tangled up in another war," he said with emphasis.

He and other young Germans expressed disillusionment with politics as well as war. They confuse normal participation in government with the old one-party Nazi system and say, "Look where that got us!"

Because of widespread unemployment, thousands are working at jobs a notch or two below those for which they were trained. At a filling station the attendant insisted on taking out every spark plug and wiping it thoroughly. (They proved to need it.)

"This isn't my job at all," he remarked. "I was trained to be a *Kaufmann* (merchant). But I was brought up to do everything thoroughly."

For holiday relaxation Berliners head for the outskirts on myriad bicycles and motor bikes; but West Berliners can't go far.

*See, in the *National Geographic Magazine*, "What I Saw Across the Rhine" by J. Frank Dene, January, 1947. For other pictures of the "What Uncle Sam and John Bull in Germany" and "Uncle Sam Hands a Twig in Germany," both by Frederick Stimpich, in the January, 1949, and October, 1948, issues.



Hot Days Are Brewing Here, but They're Good by Any Name

Although the city is divided into two parts, the East and West, the atmosphere is one of a single city. The people of Berlin are not only a lot of fun to be around, but they are also a lot of fun to be with. The city is a hotbed of activity, and the people are a lot of fun to be with. The city is a hotbed of activity, and the people are a lot of fun to be with.

In about 20 minutes," complained one woman, "you get to the Soviet Zone and have to stop."

So, on weekdays these Nazis are living day life have contented themselves with Berlin's own great parks, lakes, and rivers, the Havel and the Spree. The latter flows directly through the city.

Even the poorest farmers have flowers, often the biggest flower box seen in a patch of growing city ruin.

Berlin a Background of Ideas

Despite their stances at mutual living, no free further can ever forget that he lives in a battle-ridden city, that just over there, perhaps, across the street, is the warring Communist world.

Occasionally a few Easters find in which they can see Communist police officers away at a distance of a few miles, and they are a lot of fun to be with.

It is really the controlled background, with both sides using every available weapon of psychological warfare. The Soviet station Komsomol, actually located in the Western

part of the city, blares Communist propaganda. The powerful American station, RIAS, broadcasts programs of news, drama, music, and interviews with refugees from Red concentration camps and war-torn lands. It is clear from the free Berlin press that the news to the Soviet sector is not so good.

Last year the West found a novel way to see the Soviet-ruled zone of East Berlin in mind. A large market square, known as RIAS West Berlin's major political rallies, where their Communist-ruled fellow citizens to express their opposition to Communism and their desire for free and secret elections to ruling in the West. In the city and the zone of their elected adult citizens, the Soviet sector. The hall was filled with 50,000 people, and 12,000 letters to the West that did not meet the Soviet requirements.

The Communist tried to block the response, but did not win. The response was a lot of fun to be with. The response was a lot of fun to be with. The response was a lot of fun to be with.

"The people over there are hungry for information," observed an American official. "Every May Day we invite East Sector residents over for a big meeting and show at the stadium; about 25,000 come. We give out copies of our paper and our magazines, *Neue* and *Der Monat*. They tear 'em out of your hands. Last year one of our men lost his shirt. Finally the men had to get on top of the truck and throw 'em at the people."

Die Neue Zeitung, U. S. newspaper in German, prints in its Berlin edition a daily box score of desertions to the West by Communist Volkspolizei, or 'People's Police'.

"More than five hundred 'People's Police' are included among the 20,000 who have come over to us from the East in the last four months, asking for asylum," said the paper's assistant editor. "Some days there are only one or two police, but we get as high as 17 a day; one day we even had 32."

House Without a Smile

One of the saddest places in Berlin is the refugee center, or *Flüchtlingsstelle*. In the long drab lines of waiting people I never saw a smile.

Broken-spirited men, women, and children, these are refugees from the East. West Berlin gets at least 5,000 a month, for here they can walk through the Iron Curtain to freedom. They come with only what they can carry, having sacrificed everything else.

"How can you tell a real refugee from a spy?" I asked the German director.

"Sometimes you find out only after the damage is done," he said. (He used a German proverb, "After the child has fallen into the well.") "Cross-examination backed by double-checking with undercover agents in the East Zone usually brings out the truth.

"We get all kinds of people, but the basic aim of most of them is to raise the standard of life, which they know will be raised in the West as contrasted with the East.

All except spies get sanctuary, but only those who can prove life or liberty was in danger are granted asylum as political refugees. This coveted recognition entitles a refugee to earn a living in Berlin if he can find a job. While unemployed he receives a small allowance.

Because of limited housing and jobs, most refugees spend months or years in barrack-type camps in Berlin and West Germany.

In two stone houses in a residential section of the American Sector we found the German high command of an active underground movement, the Fighting Group Against Inhumanity. Its volunteers organize resistance to police-state methods in the East Zone, try to trace fellow Germans swallowed up by

Soviet prisons or slave-labor camps, free them if possible, and keep alive the spirit of resistance by chalking "F" for Freedom on Communist buildings in the night.

Leader of this organization is Dr. Rainer Hildebrandt, 36, a writer with the brow of a scholar and the burning eyes of a militant. Enemies from the East have tried to kidnap him. I once balked one plot by arresting two gunmen parked in a car outside his house. Their plan, they said, was to have an car knock Dr. Hildebrandt off his bicycle. Other men in a car behind would stop, under pretext of helping him to his feet, then stuff him into the back seat and race for the Soviet Sector.

While we talked with the invisible legion's leader, guarded by a bear-sized dog, mysterious people came and went through the corridors of the old house, fit setting for a Hollywood melodrama.

In one room we saw several square yards of misery, a row of open wooden packing cases containing 60,000 cards. Each of 20,000 bore the name of a person missing behind the Iron Curtain; the other 40,000 were inquiries from anxious relatives.

Names of Nazi concentration camps under Red management turn up in these cards: for example, "Seen at Buchenwald" and the date.

Hamelin Like a Different World

"In Berlin you feel as if you're about 100 miles out on a limb," said Kurt as we sped along the Russian Zone autobahn on our way back to West Germany.

When we reached Helmstedt, we took a deep breath.

"It's as if some heavy hand had been lifted," Kurt said, feelingly.

That night we slept in an atmosphere centuries away from embattled Berlin, the 349-year-old Ratcatcher House in Hameln, the Hamelin of the old Pied Piper tale.

Beside the stone gabled house runs an alley in which, to this day, law forbids any tavern, games, or merriment. For along this route, any townsman can tell you, the Pied Piper led the children of Hamelin. Like the rats he had led to the river, they followed him out the gates of the town and never were seen again.

Though whatever gave rise to the fairy tale happened more than 600 years ago, the grief of the village still finds expression in the name of the alley, Bengelosen-Strasse—"No Drums Street."

Under the stair-stepped gable roof of the old Ratcatcher House, I dreamed of the Pied Piper of Hamelin. But the children and had blue shirts, and the Piper luring them to the Unknown wore Communist red.

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To carry out the purposes for which it was founded thirty three years ago, the National Geographic Society publishes the National Geographic Magazine. The Magazine is devoted to the increase and diffusion of geographic knowledge. It is published directly to promote geographic knowledge.

Articles and photographs are received. By special arrangement, the Magazine makes generous remuneration to authors.

In addition to the gift of the National Geographic Magazine, the Society has sponsored more than two hundred expeditions, some of which require years of the labor.

The Society's most important expeditions have been the historic expeditions of the Northwestern United States in a period nearly eight centuries before Columbus reached the Atlantic. By dating the ruins of the great ancient civilizations in that region, the Society has worked out secrets that had puzzled historians for three hundred years.

In Mexico, the Society and the Smithsonian Institution have discovered the oldest writing yet found in the Americas for which we have a date. This date is now engraved in Mayan characters with a date which means November 4, 200 B. C. (Quetzalcoatl's birth). It antedates by 200 years any date previously stated in America, and reveals a great center of early American civilization.

On November 17, 1933, in a flight sustained for 14 hours by the National Geographic Society and the U. S. Army Air Corps, the world's largest airplane, the *Wingfoot II*, ascended to the world's highest record of 27,305 feet. Capt. Albert W. Stevens and Capt. Cyril A. Anderson took part in the flight, and a team of seven for history and obtained results of extraordinary value.

A notable undertaking in the history of mankind was completed in 1934 by the Society in cooperation with the National Geographic Society of the U. S. Army and the Navy. This project will require four years to photograph the vast frontier of Alaska and will provide the first survey of the entire Arctic region.

In 1938 the Society sent out seven expeditions to study the types of the region of a 100-mile area from the coast of the Gulf of California to the Gulf of Mexico, and to the Gulf of California and the Gulf of Mexico.

The Society granted \$25,000 and in addition \$25,000 was contributed by individuals and corporations to help the American people understand the great natural forces in the land of the great National Park of California.

One of the world's largest scientific and general systems of maps is being prepared by the Society and the Harvard Institute of Geography, 1938.



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streamliner in Chicago and travel at your
ease to the West Coast? The '49ers struggled
over in the Gold Rush? Well, you can be
the crack extra fast "City of San Fran-
cisco" for instance or the "Ogden" that
serves the California's lovely High Sierra
any day.

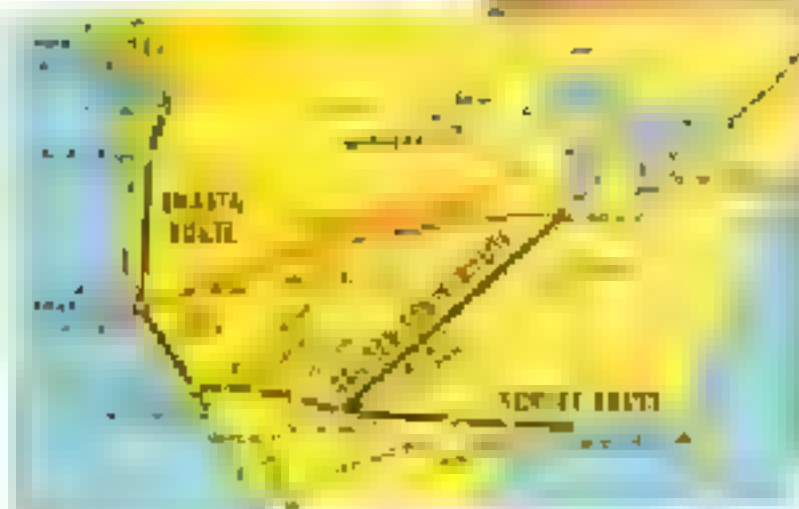
Until you've done this you've never really
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We've just issued a new folder we're
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Route Trip. Tell you all about accom-
modations on these great "name trains"
until it's lunch, even called "Lunch Car".

By the way, at San Francisco these
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Lark, *Daylight* and *Starlight* south
to Los Angeles then on with other great
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Or Shasta to the lovely Puget Northwest.

Map that you can today for free to learn



"CITY OF SAN FRANCISCO." Chicago-San Francisco via Omaha, Ogden, Great
Salt Lake, Reno, Oakland. 40 1/2 hours non-stop via CNW-UP-SF.
Shown here with Golden Gate Bridge in the background.



S-P

AMERICA'S MOST MODERN TRAINS

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Kindly send me free "How to See the West
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"Planning Your Own and Route for

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1A-1

NOW: 20^{INCH} TV THAT

*Overpowers interference
Overrides distance too!*

GE BLACK-DAYLITE TELEVISION



OBVIOUSLY a 20" screen lets you see more than the old 10, 12 and 14-inch sets. But there are all kinds of 20-inch TV. Here's the set that is built to overpower interference, pull in remote, hard-to-get stations. And here's the set with extra tubes, extra power—specialy engineered for clear, realistic pictures even at arm's length! Authentic FM sound. Hand-rubbed genuine mahogany veneers or natural blond wood. Finely-figured doors. Concealed casters make it so easy to move! Model 20CL150 \$475.00*

GE Radio Corp.
Schenectady Plant, Schenectady, N. Y.

TUNE IN THE G-E FOOTBALL ROUND-UP
with Red Barber
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NEW OIL FIELDS

EDITORIAL REPRINTED FROM **The New York Times**

“WHAT may well be the beginning of a new major domestic source of oil in the northern Middle West is indicated by two recent important finds 100 miles apart—the first April in North Dakota and another in the past few months in Montana. For several decades this country has depended heavily, though not exclusively, upon eastern and western oil fields—such as those in Texas and California. If these new finds in North Dakota and Montana presage the opening of comparable rich fields they are of great importance.

“The mounting number of cars and oil heaters in this country is steadily increasing our consumption of this material, while from a global point of view the shadows over the future of oil production in the Middle East, particularly Iran, make it most desirable to increase production from more certain sources, as in this country, as rapidly as possible.

“In our gratification over these new finds we should not lose sight of the factors which made it possible for oil to be discovered at depths of 7,000 to 11,000 feet and even greater. The contributions of geologists, drilling techniques and other engineering advances, of the oil test equipment factories which make possible the discovery and then the recovery of this buried treasure. But important, too, are the enterprise and the willingness to bear risks which motivated these efforts. Well-earned oil is well earned, but the large number of wells which are more than dry holes in the ground are recorded only in red ink in private ledgers.

“The record of oil ventures was a record of a hundred failures and only a few successes. It is a record of the pursuit of the American dream, of the search for and disappointments because no balance profits can be made if a reasonable proportion of successes is attained. In this activity, as in many others, the role of the profit motive in inducing socially useful action is of primary importance, a fact which our people and our legislators might well keep in mind.”

This advertisement is brought to you in behalf of America's thousands of privately-managed Oil Companies by the OIL INDUSTRY INFORMATION COMMITTEE, AMERICAN PETROLEUM INSTITUTE, 1000 23rd Street, N.W., Washington, D.C.

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Top Secretary THERESA J. PAULSEN, Secretary to James B. Clark, President, Pacific Gas and Electric Company, says: "I have long been familiar with Remington Rand Typewriters but the new Electri-conomy is the best yet. It makes typing so much easier, makes me feel so much better!"

Remington Rand

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STEINWAY & SONS, L.P., NEW YORK

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the piano chosen by
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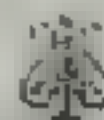


The Steinway grand piano is the finest of instruments. It is the only piano that has been designed and built by one man, and it is the only piano that has been designed and built by one man. The Steinway grand piano is the finest of instruments. It is the only piano that has been designed and built by one man, and it is the only piano that has been designed and built by one man.

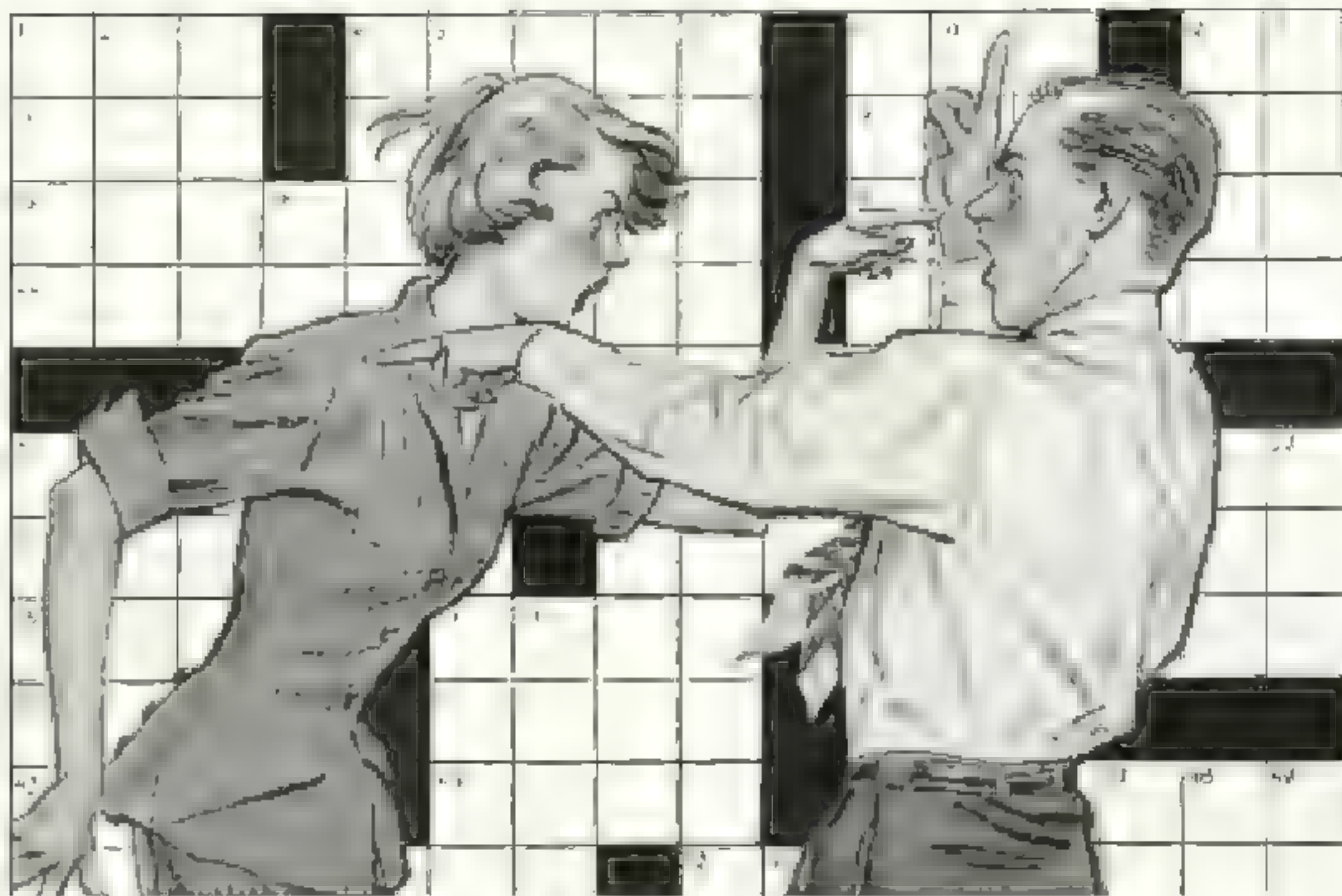
To produce it, Steinway has the finest talent in the world. The Steinway grand piano is the finest of instruments. It is the only piano that has been designed and built by one man, and it is the only piano that has been designed and built by one man.

With its elegant design and superb tone, the Steinway grand piano is the finest of instruments. It is the only piano that has been designed and built by one man, and it is the only piano that has been designed and built by one man.

The Steinway grand piano is the finest of instruments. It is the only piano that has been designed and built by one man, and it is the only piano that has been designed and built by one man.



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THE INSTRUMENT OF THE FUTURE



Does C O F F E E solve this "cross-word" puzzle?



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2. Coffee spells trouble for millions of people who are upset by caffeine. At night, it's the cause of precious sleep. But now it makes them jittery and nervous.



3. The right words solve all our troubles. Sanka. Caffeine-free. Tasty. Delicious. Sanka's the only coffee. Yes, it won't get you jittery, nervous, because it's caffeine-free!



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General Foods

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You can find out about Canada's 10 Top Vacations at any Canadian National Office.

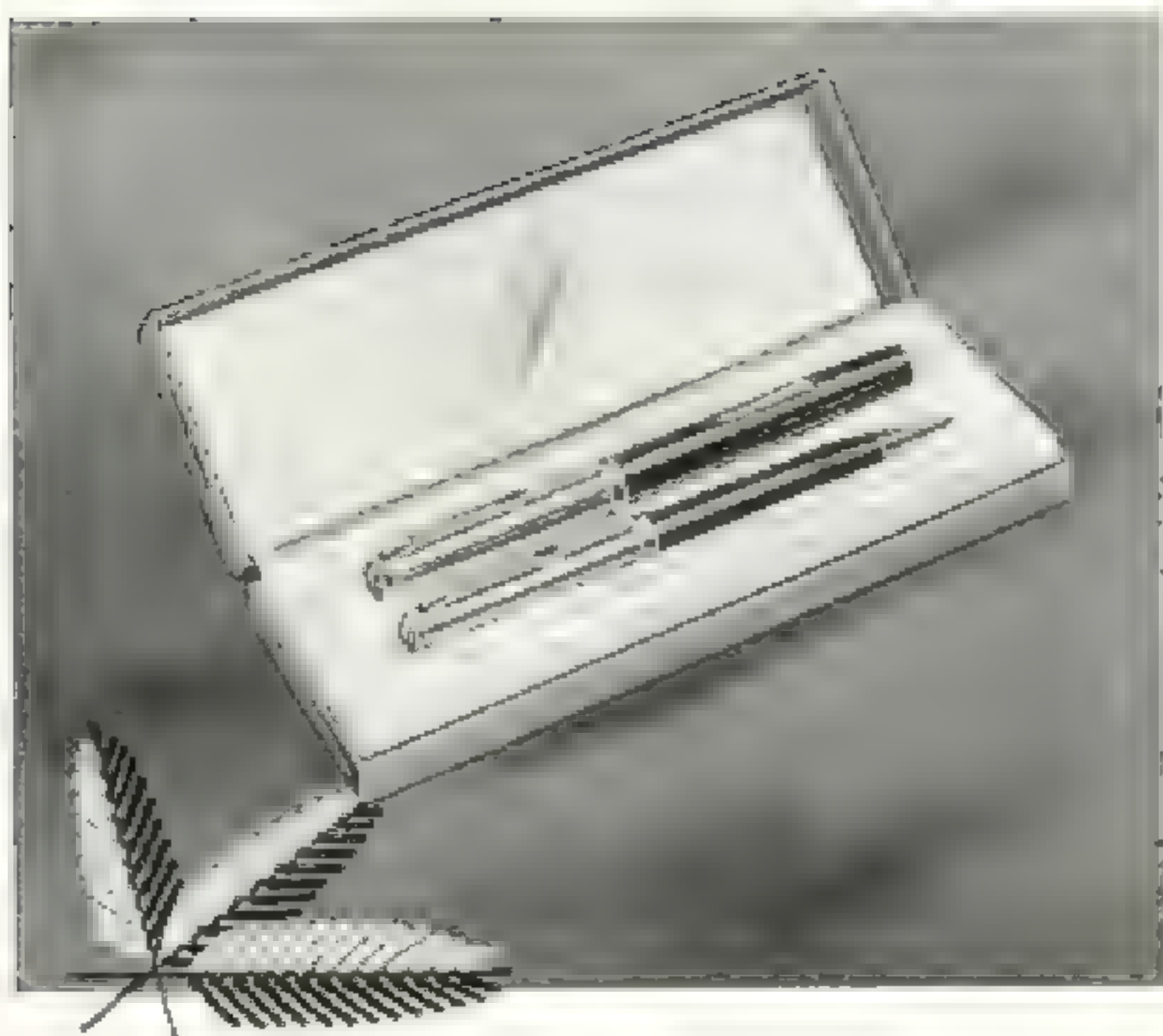
1. Alaska Cruise — Alaska Cruise — Alaska Cruise
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REPLACE . HERE'S
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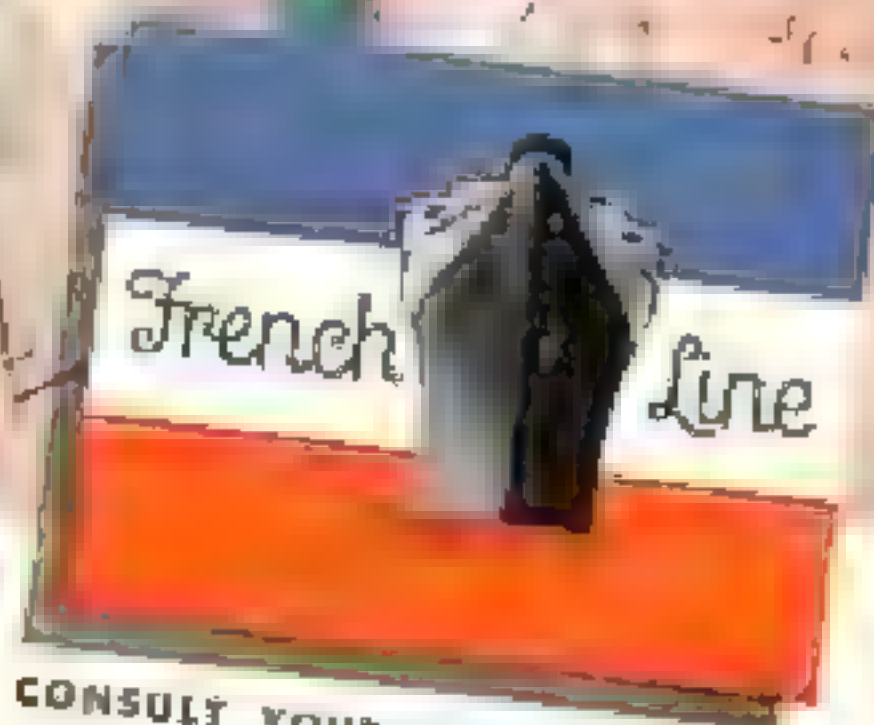
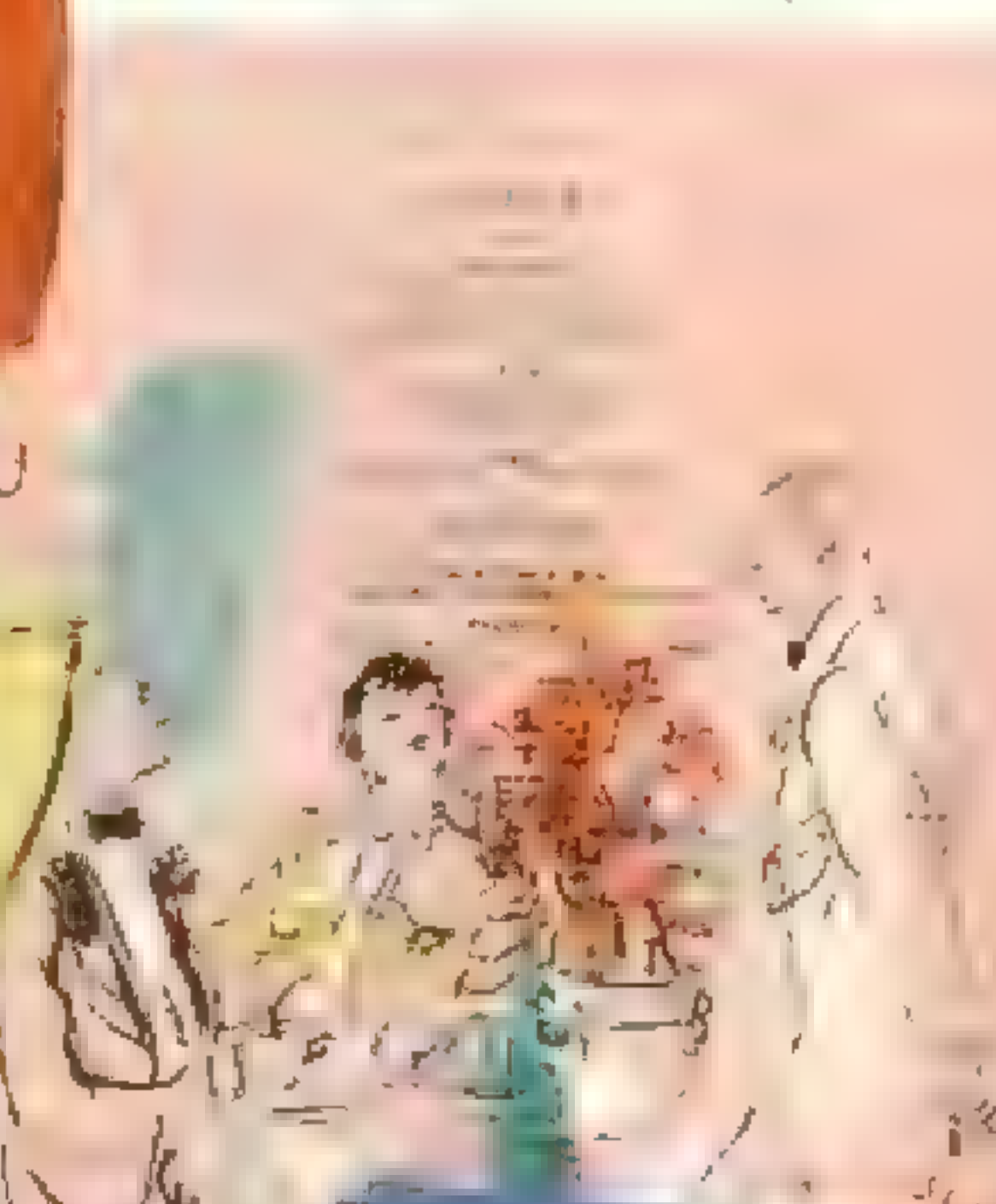
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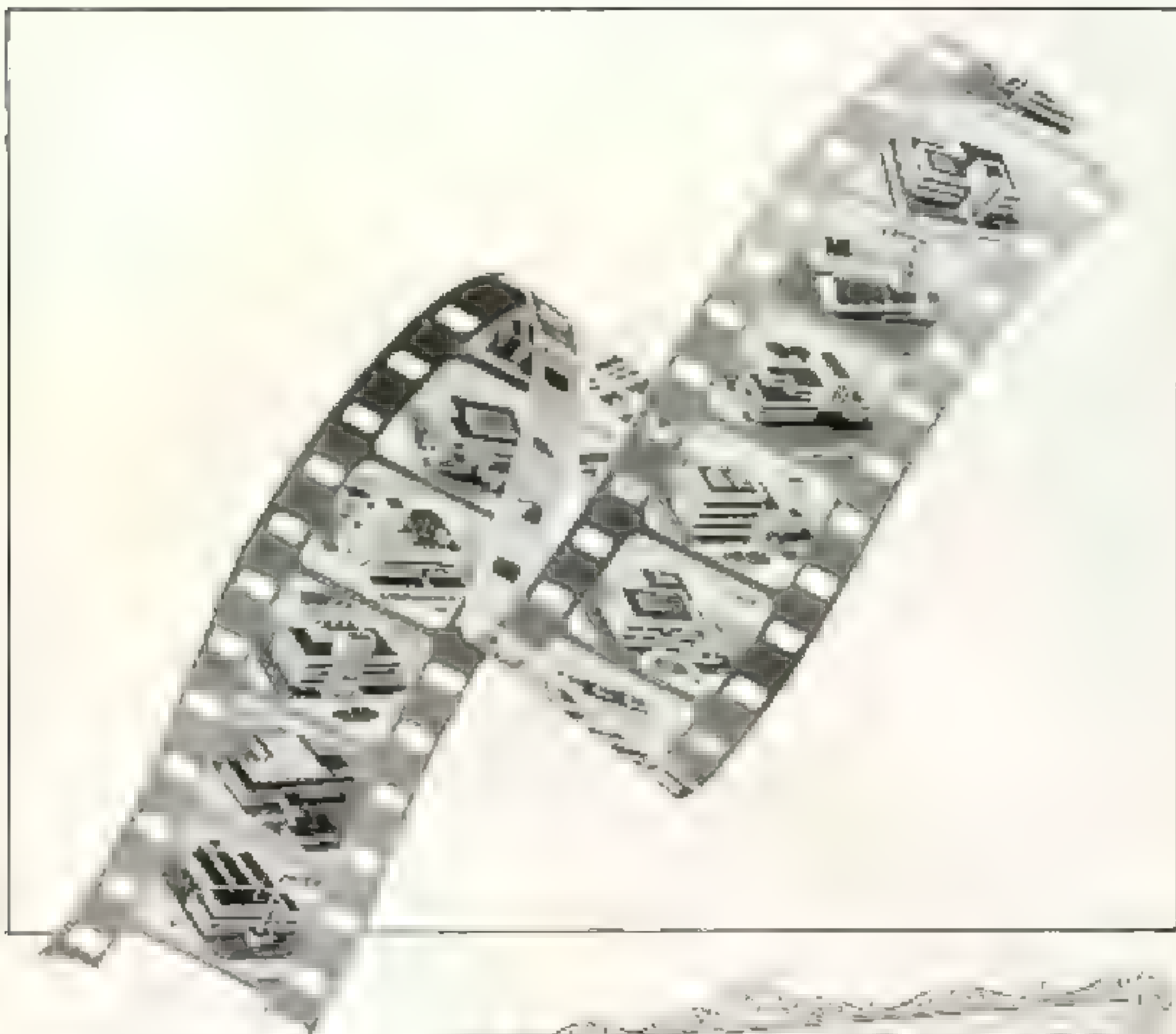
Now, when 100th anniversary rates are in effect, is the time to plan your voyage. Visit festive Paris while she is celebrating her 200th anniversary. And for an exhilarating holiday en route, travel on France-Albat! Reserve your French Line tickets now, at French Line, 610 Fifth Avenue, New York 20, N. Y.



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French Line sailings to Plymouth and Le Havre, and on to New York may call at Plymouth (contact for Le Havre slightly higher).

Liberty, Nov. 21, Dec. 7, First Class, \$175; Cabin, \$110; Tourist, \$75. *De Grasse*, Nov. 19: First Class, \$175; Cabin, \$110. Other French Line offices: Boston, Chicago, Cleveland, Dallas, Montreal, New Orleans, Philadelphia, Portland, San Francisco, Seattle, Toronto, Vancouver, B. C., Washington, D. C., Winnipeg, Man.



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Everywhere along the 8,000-mile Southern
 Railway System, you see new factories going
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This is the picture of the modern South-

land, where challenging opportunities for
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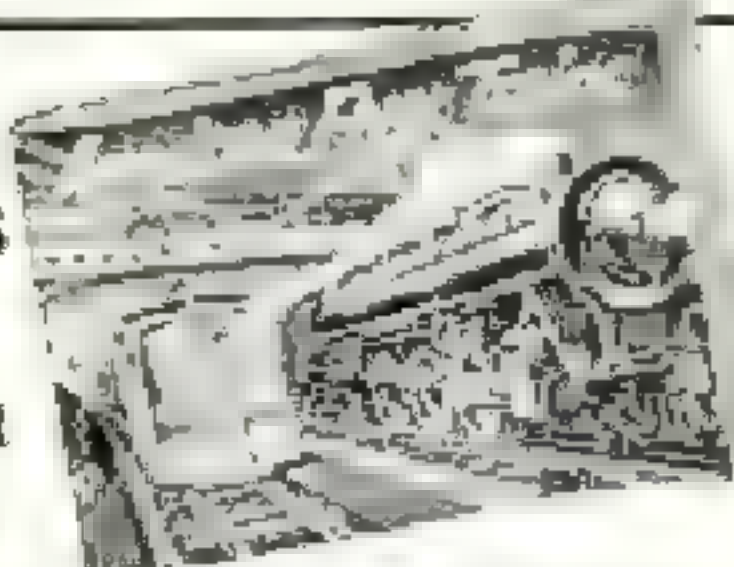
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this great country . . .



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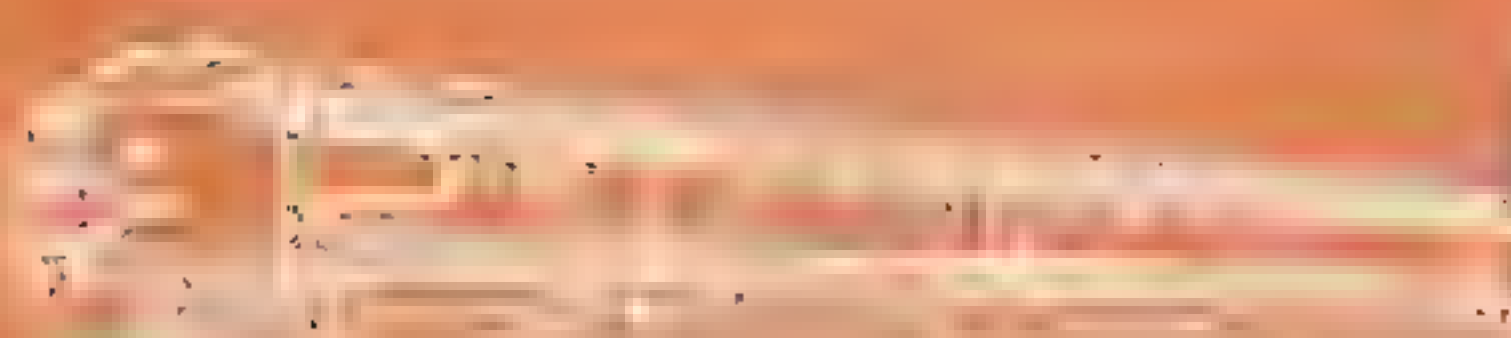
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Relax in luxurious lounges.

Dine in the exquisite Turquoise Room

(Fred Harvey service, of course)

Daily between Chicago and Los Angeles.



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$$\begin{aligned} & \frac{1}{2} \left(\frac{1}{2} \right)^2 = \frac{1}{8} \\ & \frac{1}{2} \left(\frac{1}{2} \right)^2 = \frac{1}{8} \\ & \frac{1}{2} \left(\frac{1}{2} \right)^2 = \frac{1}{8} \\ & \frac{1}{2} \left(\frac{1}{2} \right)^2 = \frac{1}{8} \\ & \frac{1}{2} \left(\frac{1}{2} \right)^2 = \frac{1}{8} \end{aligned}$$

Especially elaborate is a plate of Anejo (caviar) with Salsipueda Good
all latest little Parisian law number. For up rating at
Culinary. Master in both house in the hotel, cooking artist.
A high blood pressure etc. Curing
for epicures. Direct at and P. 1000
silver. Only 5.00 For folder and
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1. The first step is to identify the problem. In this case, the problem is that the system is not working properly.

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There is also a good reason why the 1920s and 1930s are the best time to study the American South. In the 1920s and 1930s, the South was a very different place than it is today. It was a place of great poverty, illiteracy, and racial discrimination. It was a place where the white population was the dominant force, and the black population was the subordinate. It was a place where the South was a very different place than it is today. In the 1920s and 1930s, the South was a place of great poverty, illiteracy, and racial discrimination. It was a place where the white population was the dominant force, and the black population was the subordinate. It was a place where the South was a very different place than it is today.

THREE DIMENSION COMPANY N.C. 11
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מסלול לימודי תוא ראשון

Fig. 1

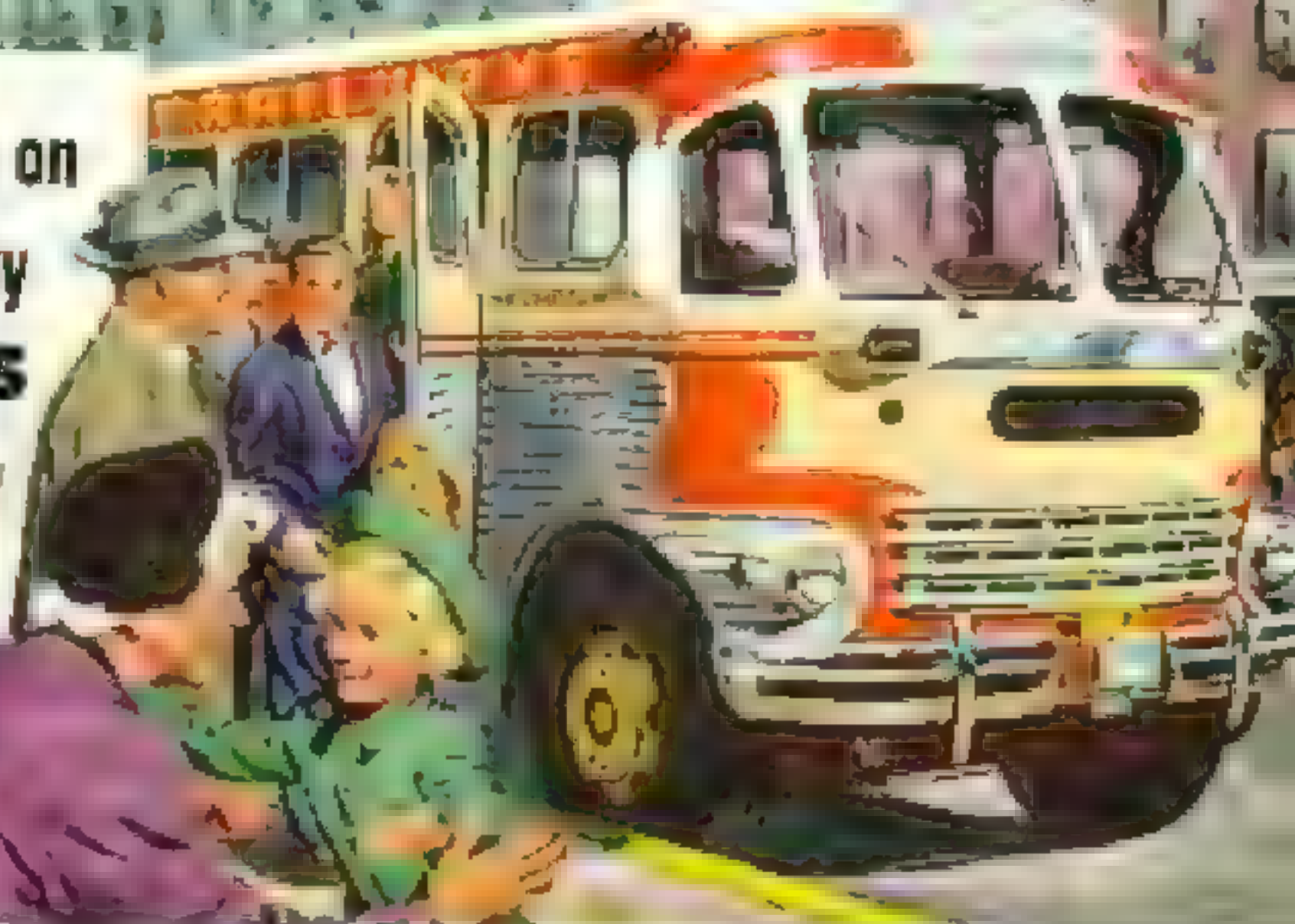
人倫關係

| City | Year | Population | Area | Population Density |
|---------------|------|------------|----------------|--------------------|
| London | 1951 | 8,251,000 | 603 sq. mi. | 13,517 per sq. mi. |
| New York | 1950 | 15,421,000 | 30,213 sq. mi. | 510 per sq. mi. |
| Los Angeles | 1950 | 2,989,000 | 4,058 sq. mi. | 737 per sq. mi. |
| Chicago | 1950 | 3,619,000 | 604 sq. mi. | 5990 per sq. mi. |
| San Francisco | 1950 | 805,000 | 46 sq. mi. | 17,500 per sq. mi. |
| Hong Kong | 1951 | 1,900,000 | 34 sq. mi. | 55,882 per sq. mi. |
| Calcutta | 1951 | 4,500,000 | 184 sq. mi. | 24,457 per sq. mi. |
| Manila | 1950 | 1,200,000 | 15 sq. mi. | 80,000 per sq. mi. |
| Bombay | 1951 | 2,800,000 | 344 sq. mi. | 8,140 per sq. mi. |
| Shanghai | 1953 | 10,000,000 | 1,460 sq. mi. | 6,849 per sq. mi. |
| Beijing | 1953 | 7,000,000 | 1,640 sq. mi. | 4,268 per sq. mi. |
| Tientsin | 1953 | 3,500,000 | 1,040 sq. mi. | 3,365 per sq. mi. |
| Harbin | 1953 | 2,500,000 | 1,040 sq. mi. | 2,399 per sq. mi. |
| Chongqing | 1953 | 2,000,000 | 1,040 sq. mi. | 1,923 per sq. mi. |
| Kobe | 1950 | 2,100,000 | 344 sq. mi. | 6,105 per sq. mi. |
| Osaka | 1950 | 2,100,000 | 344 sq. mi. | 6,105 per sq. mi. |
| Tokyo | 1950 | 3,500,000 | 1,040 sq. mi. | 3,365 per sq. mi. |
| Yokohama | 1950 | 2,100,000 | 344 sq. mi. | 6,105 per sq. mi. |
| Kyoto | 1950 | 1,100,000 | 15 sq. mi. | 73,333 per sq. mi. |
| Nagoya | 1950 | 1,100,000 | 15 sq. mi. | 73,333 per sq. mi. |
| Sapporo | 1950 | 1,100,000 | 15 sq. mi. | 73,333 per sq. mi. |
| Fukuoka | 1950 | 1,100,000 | 15 sq. mi. | 73,333 per sq. mi. |
| Kanagawa | 1950 | 1,100,000 | 15 sq. mi. | 73,333 per sq. mi. |
| Hyogo | 1950 | 1,100,000 | 15 sq. mi. | 73,333 per sq. mi. |
| Chiba | 1950 | 1,100,000 | 15 sq. mi. | 73,333 per sq. mi. |
| Saitama | 1950 | 1,100,000 | 15 sq. mi. | 73,333 per sq. mi. |
| Shizuoka | 1950 | 1,100,000 | 15 sq. mi. | 73,333 per sq. mi. |
| Aichi | 1950 | 1,100,000 | 15 sq. mi. | 73,333 per sq. mi. |
| Gunma | 1950 | 1,100,000 | 15 sq. mi. | 73,333 per sq. mi. |
| Yamanashi | 1950 | 1,100,000 | 15 sq. mi. | 73,333 per sq. mi. |
| Nagano | 1950 | 1,100,000 | 15 sq. mi. | 73,333 per sq. mi. |
| Toyama | 1950 | 1,100,000 | 15 sq. mi. | 73,333 per sq. mi. |
| Ishikawa | 1950 | 1,100,000 | 15 sq. mi. | 73,333 per sq. mi. |
| Fukushima | 1950 | 1,100,000 | 15 sq. mi. | 73,333 per sq. mi. |
| Miyagi | 1950 | 1,100,000 | 15 sq. mi. | 73,333 per sq. mi. |
| Iwate | 1950 | 1,100,000 | 15 sq. mi. | 73,333 per sq. mi. |
| Akita | 1950 | 1,100,000 | 15 sq. mi. | 73,333 per sq. mi. |
| Ibaraki | 1950 | 1,100,000 | 15 sq. mi. | 73,333 per sq. mi. |
| Chiba | 1950 | 1,100,000 | 15 sq. mi. | 73,333 per sq. mi. |
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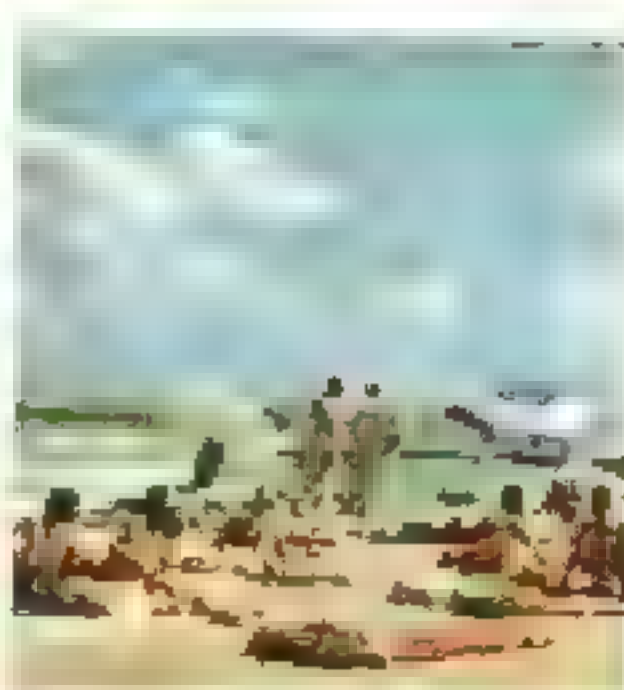
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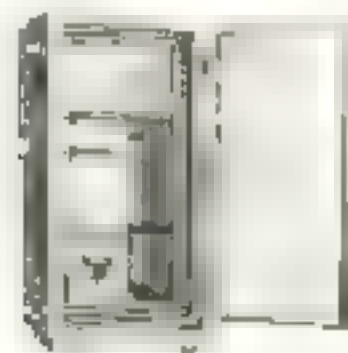
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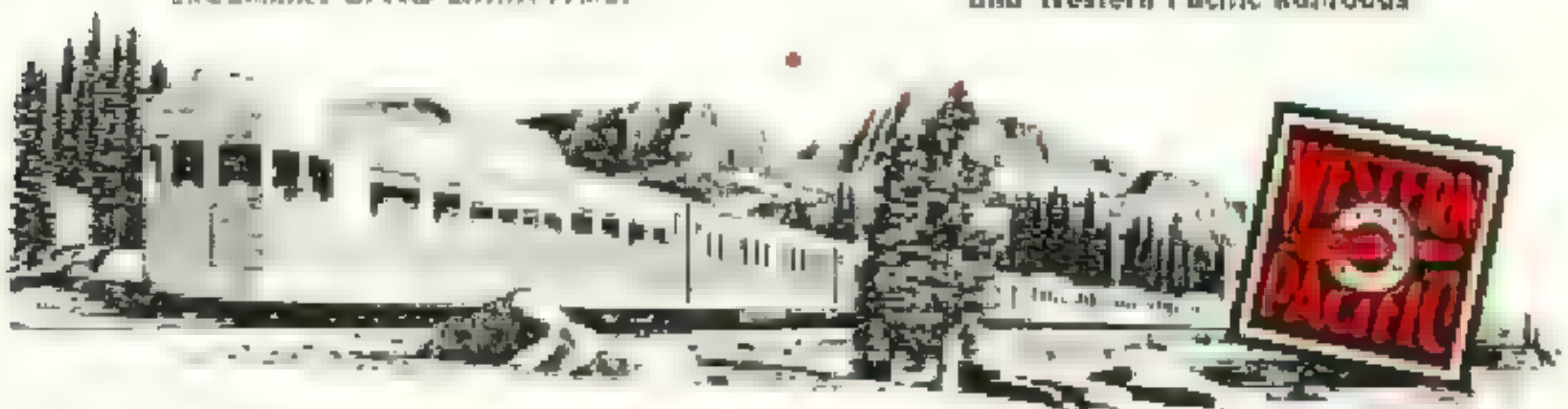
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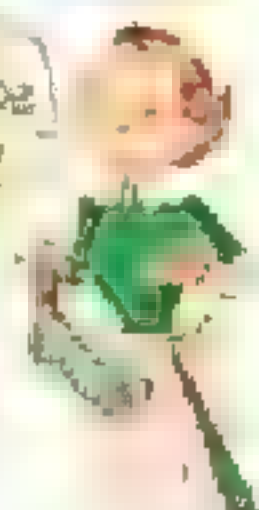
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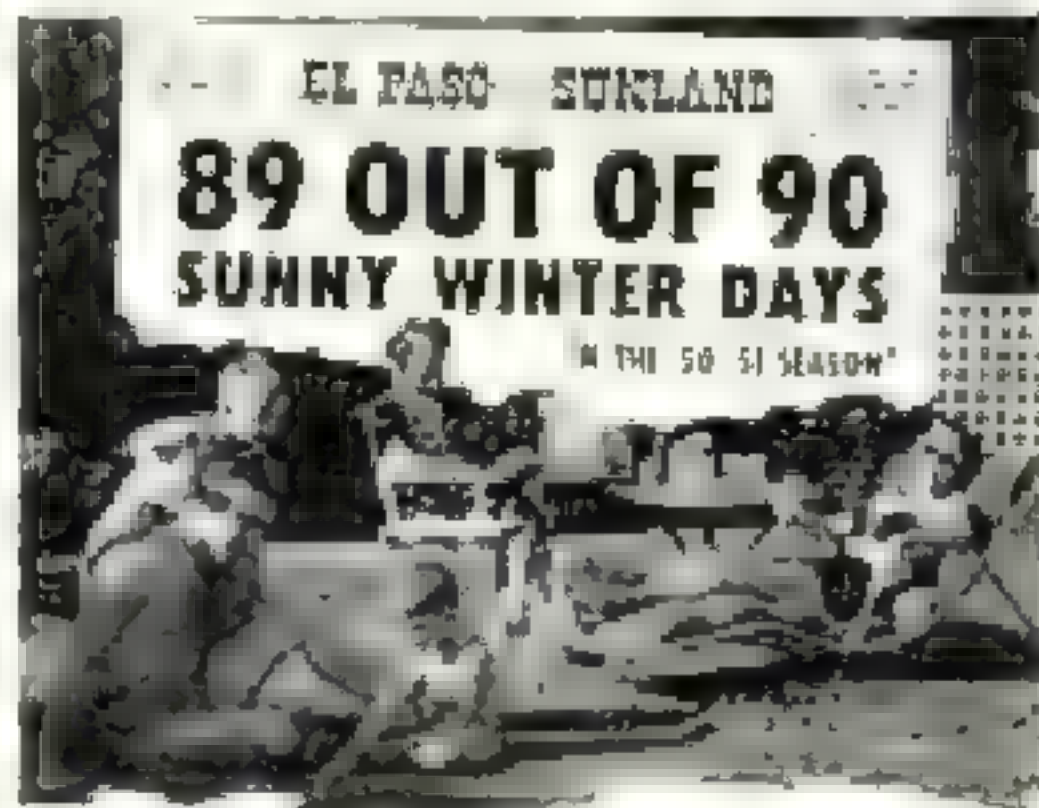
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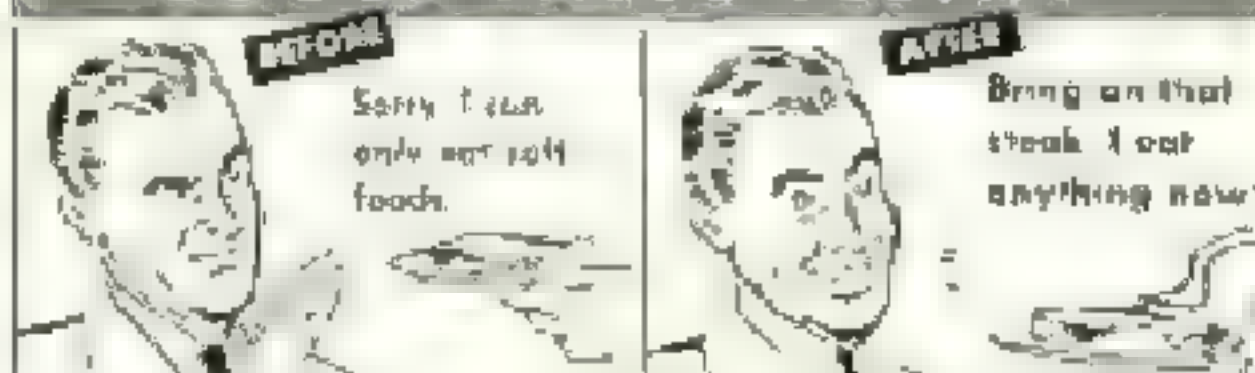
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[illegible]

Journal of Applied Probability

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4.4 FORMS OF INSURANCE AND SURETY BONDS

2. Trade and Investment Agreements The Trade and Investment Partnership Act provides for a number of trade and investment agreements. It is designed to help the government to develop its international trade relations. It also provides for the establishment of a trade and investment commission. The commission is to be established by the President. It is to be composed of the President, the Secretary of State, the Secretary of Commerce, and the Secretary of the Treasury. The commission is to be authorized to make such investigations and studies as it may deem necessary and to make such recommendations as it may deem appropriate to the President. The commission is to be authorized to make such agreements and arrangements as it may deem necessary and appropriate with any foreign government or authority. The commission is to be authorized to make such agreements and arrangements as it may deem necessary and appropriate with any foreign government or authority. The commission is to be authorized to make such agreements and arrangements as it may deem necessary and appropriate with any foreign government or authority.

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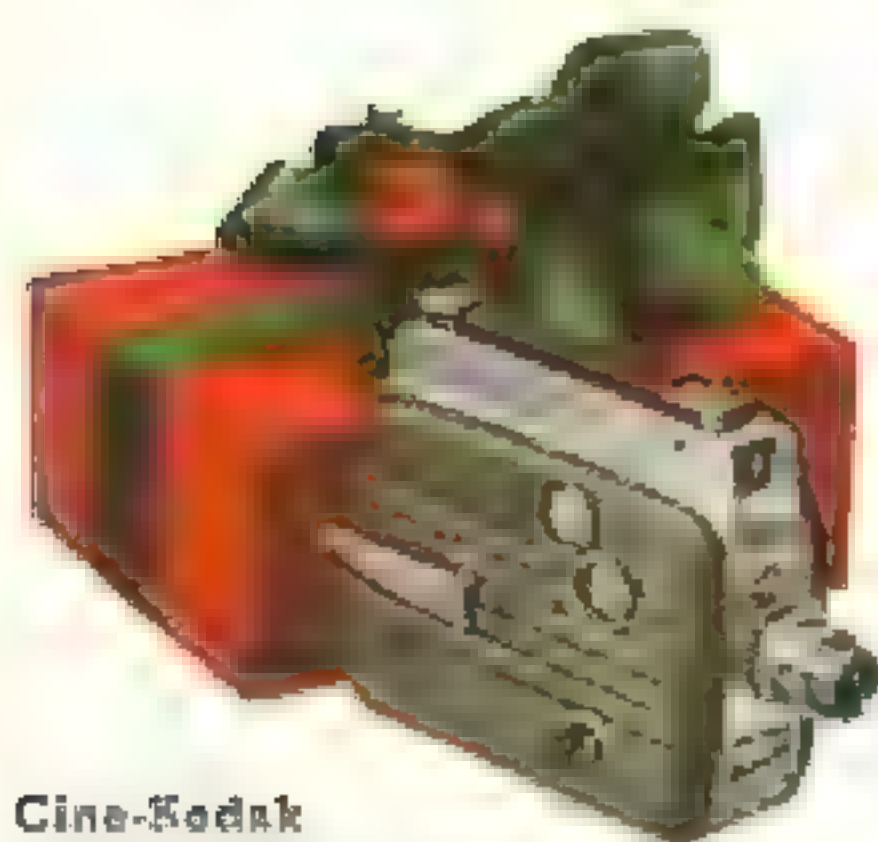
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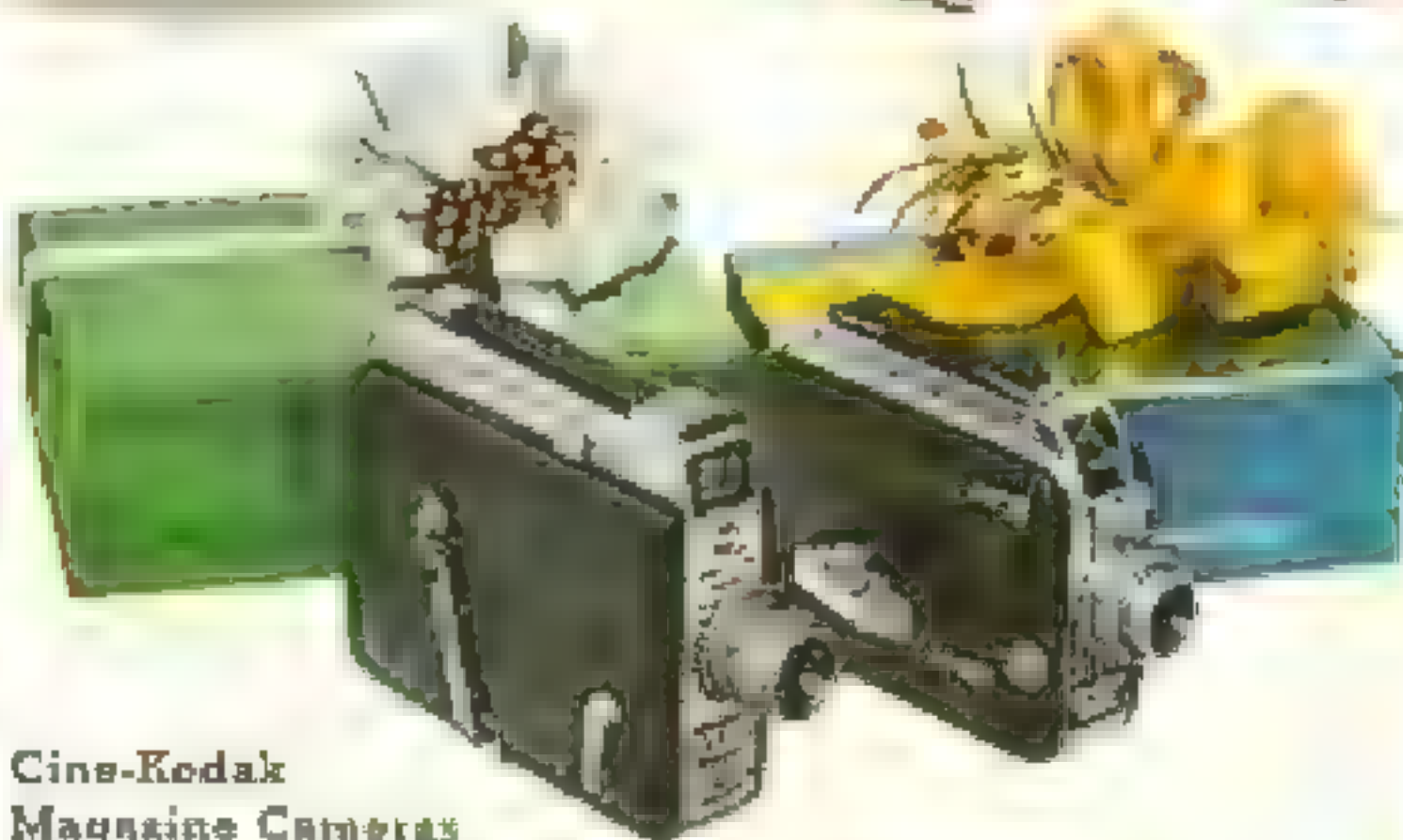
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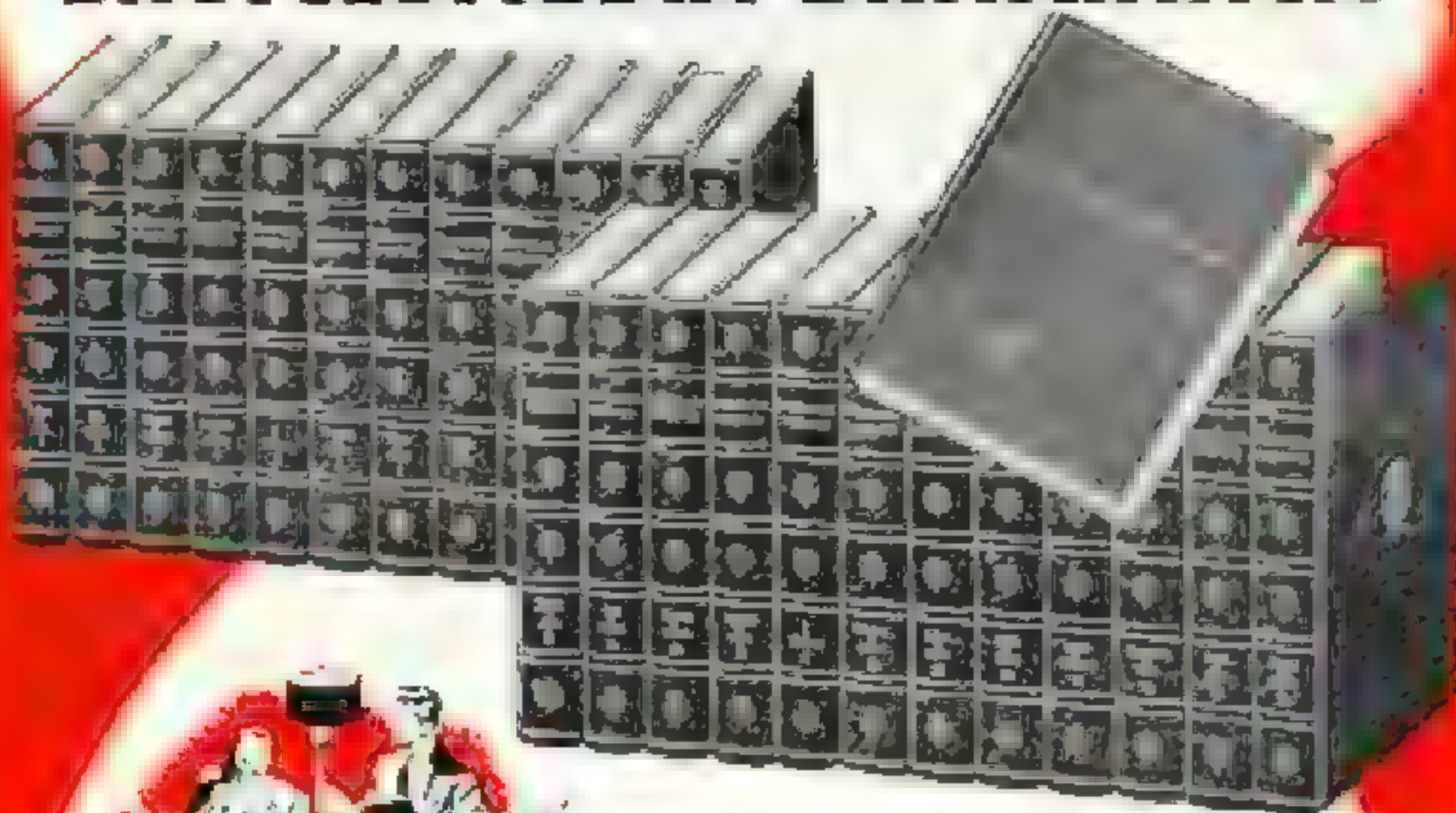
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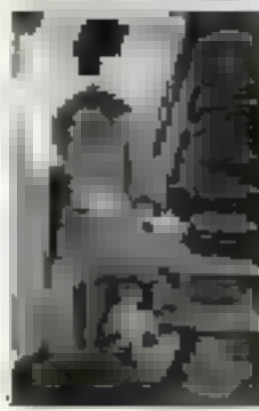
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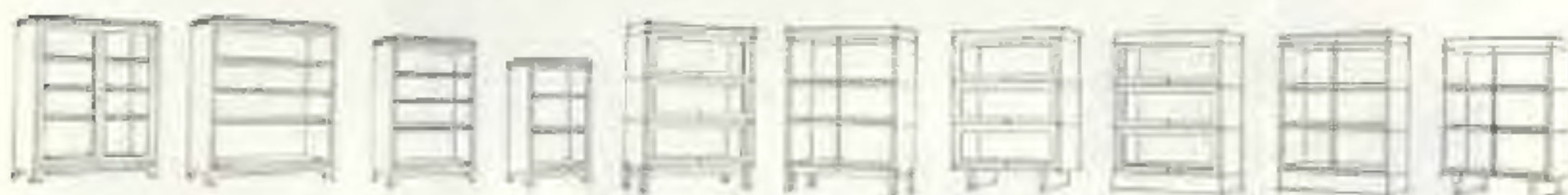
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